Memorandum

MIAMI-DADE COUNTY

Date: July 19, 2016

Agenda Item No. 8(F)(3)

To: Honorable Chairman Jean Monestime
and Members, Board of County Commissioners

From: Carlos A. Gimenez
Mayor

Subject: Recommendation for Approval to Award a Legacy Contract: Automated Fare Collection System Upgrade and Mobile Ticketing Application

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Recommendation

It is recommended that the Board of County Commissioners (Board) approve this request for award of *Legacy Contract No. L8481-0/27, Automated Fare Collection System Upgrade and Mobile Ticketing Application* for the Department of Transportation and Public Works. On May 6, 2008, the Board awarded contract *RFP8481-2/22, Automated Fare Collection System* to Cubic Transportation Systems, Inc. (Cubic) for the then Miami-Dade Transit Department for the implementation of regional fare vending capabilities with (EASY Card) solution across participating agencies. In an effort to continue to leverage the existing investment in the current ticketing system, the Department of Transportation and Public Works in conjunction with the Information Technology Department explored the option of utilizing Cubic's cloud services environment to facilitate mobile ticketing payments and self-service options. The cloud services offered by Cubic through this contract allow for an upgrade of back office functions so the application will remain current throughout the term of the contract. This project will facilitate open interfaces and data sharing for interoperability among external applications and vendor technology, providing services such as parking, ride share, bike share, or other means of transportation such as taxis, thus moving toward seamless travel options throughout the County.

Cubic's cloud services environment also provides access to the County to overhaul existing ticket vending machine software, fare gates, point-of-sale terminals, and ticket office machines at customer service centers. This provides a comprehensive solution, and offers riders a mobile ticketing solution while modernizing existing fare boxes and fare gates to mitigate replacement costs. Over $35 million in annual revenues are received from bus fare box cash collections. Utilizing the exiting devices allows riders to continue to use EASY Cards or cash, while offering an option to use mobile ticketing features that are seamlessly integrated with existing devices. The cloud based mobile enhanced fare system also provides real-time data and trip planning tools which offer improved customer service, reduce traffic, and reduce lines at ticket vending machines when purchasing fares. Additionally, the service assists in reducing the need to carry cash or may serve to eliminate fare cards because users can tap their phones or credit cards at fare gates and fare boxes. This will be a convenient option to plan and pay for an entire trip using a single application. By utilizing the existing infrastructure and technology already installed, Miami-Dade County can achieve the most cost effective and expedited results for offering the new mobile ticketing application.

While replacing the fare collection system is cost prohibitive at this time, the availability and practicality of competition for these services will be evaluated once the current fare collection system has reached the end of its useful life in order to reduce or eliminate the need for future legacy purchases for these services. Accordingly, it is recommended that this legacy contract be awarded to Cubic Transportation Systems, Inc., pursuant to Section 2-8.1(b)(2) of the County Code, for continuity of automated fare collection services.

Scope

The scope of this item is countywide in nature.

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Fiscal Impact/Funding Source

The fiscal impact for the 11 year and six (6) month term is $33,078,000. The original contract, 8481-2/22, which is in its first option to renew, is valued at $55,126,949 for 10 years and expires in May 31, 2018. The allocation under the new legacy contract is based on the implementation costs, maintenance and support fees for all new system capabilities.

Department	Allocation	Funding Source	Contract Manager
Transportation and Public Works	$33,078,000	DTPW Operating	Jose Rodriguez
Total	**$33,078,000**		

Track Record/Monitor

Brian Webster of the Internal Services Department is the Procurement Contracting Officer.

Delegated Authority

If this item is approved, the County Mayor or County Mayor's designee will have the authority to exercise all provisions of the contract pursuant to Section 2-8.1 of the County Code and Implementing Order 3-38, including any cancellation, renewal and extension provisions.

Vendor Recommended for Award

Awardee	Principal Address	Address of Branch Offices or Headquarters in Miami-Dade or Broward*	Employee Residents 1)Miami-Dade 2)Broward 3)Percentage*	Principal
Cubic Transportation Systems, Inc.	5650 Kearny Mesa Road San Diego, CA	None	0 0 0%	Stephen O. Shewmaker

*Provided pursuant to Resolution No. R-1011-15. Percentage of employee residents is the percentage of vendors' employees who reside in Miami-Dade or Broward as compared to the vendor's total workforce.

Due Diligence

Pursuant to Resolution No. R-187-12, due diligence was conducted in accordance with the Internal Services Department's Procurement Guidelines to determine contractor responsibility, including verifying corporate status and that there are no performance or compliance issues. The lists that were referenced include convicted bidders, debarred bidders, delinquent contractors, suspended bidders, and federal excluded parties. There are no adverse findings relating to contractor responsibility.

Applicable Ordinances and Contract Measures

- The two (2) percent User Access Program provision applies and will be collected on all purchases where permitted by the funding source.
- The Small Business Enterprise Bid Preference and Local Preference Ordinances do not apply.
- The Living Wage Ordinance does not apply.

Alina T. Hudak
Deputy Mayor

MEMORANDUM

(Revised)

TO: Honorable Chairman Jean Monestime
and Members, Board of County Commissioners

DATE: July 19, 2016

FROM: Abigail Price-Williams
County Attorney

SUBJECT: Agenda Item No. 8(F)(3)

Please note any items checked.

_____ **"3-Day Rule" for committees applicable if raised**

_____ **6 weeks required between first reading and public hearing**

_____ **4 weeks notification to municipal officials required prior to public hearing**

_____ **Decreases revenues or increases expenditures without balancing budget**

_____ **Budget required**

_____ **Statement of fiscal impact required**

_____ **Statement of social equity required**

_____ **Ordinance creating a new board requires detailed County Mayor's report for public hearing**

_____ **No committee review**

_____ **Applicable legislation requires more than a majority vote (i.e., 2/3's ____, 3/5's ____, unanimous _____) to approve**

_____ **Current information regarding funding source, index code and available balance, and available capacity (if debt is contemplated) required**

Approved _____ Mayor
Veto _____
Override _____

Agenda Item No. 8(F)(3)
7-19-16

RESOLUTION NO. _____

RESOLUTION AUTHORIZING APPROVAL OF A LEGACY CONTRACT FOR AUTOMATED FARE COLLECTION SYSTEM UPGRADE AND MOBILE TICKETING APPLICATION FOR THE DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS, CONTRACT NO. L8481-0/27, TO CUBIC TRANSPORTATION SYSTEMS, INC., FOR AN ELEVEN YEAR AND SIX MONTH TERM IN A TOTAL AMOUNT NOT TO EXCEED $33,078,000.00 AND APPROVING TERMS OF AND AUTHORIZING THE COUNTY MAYOR OR COUNTY MAYOR'S DESIGNEE TO EXECUTE CONTRACT AND TO EXERCISE ALL PROVISIONS OF THE CONTRACT PURSUANT TO SECTION 2-8.1 OF THE COUNTY CODE AND IMPLEMENTING ORDER 3-38

WHEREAS, this Board desires to accomplish the purposes outlined in the accompanying memorandum, a copy of which is incorporated herein by reference,

NOW, THEREFORE, BE IT RESOLVED BY THE BOARD OF COUNTY COMMISSIONERS OF MIAMI-DADE COUNTY, FLORIDA, that this Board authorizes award of a legacy contract pursuant to Section 2-8.1(b)(2) of the County Code for a term of eleven years and six months and an amount not to exceed $33,078,000.00 for Contract No. L8481-0/27, in substantially the form attached hereto and made a part hereof, for automated fare collection system upgrade and mobile ticketing application for the Department of Transportation and Public Works to Cubic Transportation Systems, Inc. This Board further authorizes the County Mayor or County Mayor's designee to execute the contract and to exercise all provisions of the contract pursuant to Section 2-8.1 of the County Code and Implementing Order 3-38.

The foregoing resolution was offered by Commissioner , who moved its adoption. The motion was seconded by Commissioner and upon being put to a vote, the vote was as follows:

Jean Monestime, Chairman
Esteban L. Bovo, Jr., Vice Chairman

Bruno A. Barreiro	Daniella Levine Cava
Jose "Pepe" Diaz	Audrey M. Edmonson
Sally A. Heyman	Barbara J. Jordan
Dennis C. Moss	Rebeca Sosa
Sen. Javier D. Souto	Xavier L. Suarez
Juan C. Zapata	

The Chairperson thereupon declared the resolution duly passed and adopted this 19th day of July, 2016. This resolution shall become effective upon the earlier of (1) 10 days after the date of its adoption unless vetoed by the County Mayor, and if vetoed, shall become effective only upon an override by this Board, or (2) approval by the County Mayor of this Resolution and the filing of this approval with the Clerk of the Board.

MIAMI-DADE COUNTY, FLORIDA
BY ITS BOARD OF
COUNTY COMMISSIONERS

HARVEY RUVIN, CLERK

By:_____
Deputy Clerk

Approved by County Attorney as
to form and legal sufficiency.

Bruce Libhaber

AUTOMATED FARE COLLECTION SYSTEM UPGRADE AND MOBILE TICKETING APPLICATION

CONTRACT NO. L8481-0/27

THIS AGREEMENT made and entered into as of this _____ day of _____ by and between Cubic Transportation Systems, Inc., a corporation organized and existing under the laws of the State of California, having its principal office at 5650 Kearny Mesa Road, San Diego, California 92111 (hereinafter referred to as the "Contractor"), and Miami-Dade County, a political subdivision of the State of Florida, having its principal office at 111 N.W. 1st Street, Miami, Florida 33128 (hereinafter referred to as the "County"),

WITNESSETH:

WHEREAS, the Contractor has offered to provide Automated Fare Collection Modernization, on a non-exclusive basis, that shall conform to the Scope of Services (Appendix A) and all associated addenda and attachments, incorporated herein by reference, and the requirements of this Agreement; and,

WHEREAS, the Contractor has submitted two written proposals dated June 30, 2016, Exhibits A-1 and A-2, hereinafter referred to as the "Contractor's Proposal" which is incorporated herein by reference; and,

WHEREAS, the County desires to procure from the Contractor such Automated Fare Collection Modernization services for the County, in accordance with the terms and conditions of this Agreement;

NOW, THEREFORE, in consideration of the mutual covenants and agreements herein contained, the parties hereto agree as follows:

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ARTICLE 1. ABBREVIATIONS

The following words and expressions used in this Agreement shall be construed as follows, except when it is clear from the context that another meaning is intended:

AFC	Automated Fare Collection
AFCM	Automated Fare Collection Modernization
AFCS	Automated Fare Collection System
ATM	Asynchronous Transfer Mode or Automatic Teller Machine
AVL	Automatic Automated Fare Collection Systems Locator
CAD	Computer Aided Drafting
CDR	Conceptual Design Review
CCS	Central Computer System
CDRL	Contract Data Requirements List
COTS	Commercial off the Shelf
CSC	Contactless Smart Card
CSCR	Contactless Smart Card Reader
DTPW	Department of Transportation and Public Works
EMV	Europay, MasterCard and Visa
FDR	Final Design Review
GCS	Garage Computer System
GPS	Global Positioning System
GUI	Graphical User Interface
ISO	International Standards Organization
MDC	Miami-Dade County
NTP	Notice to Proceed
OEM	Original Equipment Manufacturer
OSHA	Occupational Safety and Health Administration
PAT	Production Acceptance Test
PC	Personal Computer (IBM – compatible PC)
PCB	Printed Circuit Boards
PDR	Preliminary Design Review
PIN	Personal Identification Number
POP	Proof of Payment
QA/QC	Quality Assurance/ Quality Control
STS	Special Transportation Services
SCR	Smart Card Reader
SDD	Fare Collection System Design Description
COUNTY	Miami-Dade County
SIT	Systems Integration Test
TCP/IP	Transmission Control Protocol / Internet Protocol
UPS	Uninterruptible Power Supply
WAN	Wide Area Network

ARTICLE 2. DEFINITIONS

a) The words "Contract" or "Agreement" to mean collectively these terms and conditions, the Scope of Services (Appendix A), Pricing Schedule (Appendix B), all other appendices and attachments hereto, all amendments issued hereto, and the Contractor's Proposal.

b) The words "Contract Date" to mean the date on which this Agreement is effective.

c) The words "Contract Manager" to mean Miami-Dade County's Director, Internal Services Department, or the duly authorized representative designated to manage the Contract.

d) The word "Deliverables" to mean all documentation and any items of any nature submitted by the Contractor to the County's Project Manager for review and approval pursuant to the terms of this Agreement.

e) The words "directed", "required", "permitted", "ordered", "designated", "selected", "prescribed" or words of like import to mean respectively, the direction, requirement, permission, order, designation, selection or prescription of the County's Project Manager; and similarly the words "approved", acceptable", "satisfactory", "equal", "necessary", or words of like import to mean respectively, approved by, or acceptable or satisfactory to, equal or necessary in the opinion of the County's Project Manager.

f) The words "Extra Work" or "Additional Work" to mean additions or deletions or modifications to the amount, type or value of the Work and Services as required in this Contract, as directed and/or approved by the County.

g) The words "Scope of Services" to mean the document appended hereto as Appendix A, which details the work to be performed by the Contractor.

h) The word "subcontractor" or "subconsultant" to mean any person, entity, firm or corporation, other than the employees of the Contractor, who furnishes labor and/or materials, in connection with the Work, whether directly or indirectly, on behalf and/or under the direction of the Contractor and whether or not in privity of Contract with the Contractor.

i) The words "Work", "Services" "Program", or "Project" to mean all matters and things required to be done by the Contractor in accordance with the provisions of this Contract.

j) Wherever in the Contract Documents the words "directed," "required," "ordered," "designated," "prescribed," or similar words are used, it shall be understood that the "direction," "requirement," "order," "designation," or "prescription" of the County is intended unless otherwise expressly stated. Similarly, the word "approved" or similar words, shall mean "approved by" the County, unless otherwise expressly stated.

k) Where "as shown," "as indicated," "as detailed," or similar words are used, it shall be understood that the reference is made to the Contract Documents unless stated otherwise.

l) Whenever the Contract Documents reference a standard, said standard shall be, unless otherwise indicated, the latest version or edition in effect on the date of the Proposal.

m) In the case of a conflict between referenced standards and the Contract Documents, the Contract Documents shall govern.

Additional Definitions

Acceptance: Reviewed for conformity to Specification and accepted, in writing, by Miami-Dade County (MDC) through issuance of a formal letter.

Accepted Equal: The proposed alternative shall be functionally compatible with, and of equal or better quality than the item it is proposed to replace. MDC's decision as to whether any material or equipment proposed is equal to that specified shall be binding on both MDC and the Contractor.

AFC Central Computer System: Refer to Central Computer System.

Allowance: The establishment of a budget allowance in the award amount to the Contractor is a method of allocating funds to portions of the work that cannot be specified with sufficient particularity at the time of contract award. Refer to Paragraph GP3.3.

Alteration: A change or substitution in the form, character, or detail of the work done or to be done within the original scope of the Contract.

Approval: MDC's written acknowledgement of Acceptance.

Assignee: The third party to which rights and/or obligations of a contract is transferred from a contracting party ("Assignor").

Assignment: The transfer to a third party ("Assignee") by a contracting party ("Assignor") of its obligations and or rights under a contract.

Assignor: A party under contract which assigns rights and/or obligations of that contract to a third party ("Assignee").

Automated Fare Collection System ("AFCS"): The name given to three interoperable automated fare media systems for government-run buses, trains and ferries in and around Miami-Dade County.

Authorized Provider: A firm or individual certified by the Contractor to provide services relating to the Contractor's products.

Authorized Signee: The person who is executing the Contract on behalf on the Contractor and who is authorized to bind the Contractor.

Bad Numbers: Credit or debit numbers that are not valid for transaction processing.

Base Line Design: The design of each component, apparatus, systems, subsystems, or materials which have received drawing acceptance.

Basic or Manufacturer's Standard: Shall mean the component or part standard to be acceptable as part of the Automated Fare Collection System of the Contractor.

Card: A credit card, debit (ATM) card or stored value card.

Central Computer System: The hosted suites of applications that processes the data transferred

from Garage Computer Systems and/or Station Controllers. It also stores fare tables and other AFC system and equipment parameters for data exchange and provides interfaces to other systems.

Change Order: A Contract Document executed by MDC and issued to the Contractor amending the Contract Terms and Conditions and/or Specifications. The change order establishes the basis for payment and time adjustments, if any, of the work affected by the changes. The Document becomes a part of the Contract when executed by the Contractor and MDC. All terms and conditions of the Contract Documents including the Specification remain as previously stated unless so noted in the text of the change order.

Clearinghouse: A financial services company that provides clearing and settlement services for financial transactions, and often acts as central counterparty.

Cloud Services: The Contractor provided and managed computing resources and applications.

Contactless Smart Card: A credit card-sized, ISO 14443 compliant card containing an integrated circuit chip that stores data electronically. The data is read and re-encoded when the contactless smart card is used at a reader/encoder device. The contactless smart card can accommodate any fare instrument available within the system.

Contract Sum: All monies paid to the Contractor by Miami-Dade County for the work to be completed pursuant to the contract documents.

Contract Term: The number of days allowed for completion of the Contract.

Contractor: The Prime Contractor solely responsible for the quality and proper functioning of the System and all components/ Automated Fare Collection Modernization; the person or persons, Proposer, partnership, corporation, or combination thereof which has entered into this Contract with MDC to supply the System.

Contractor's Drawings: Items such as general drawings, detail drawings, graphs, diagrams, sketches, calculations, and catalog cuts which are prepared by the Contractor to detail its work.

Contractor Representative: The person designated by the Contractor with responsibility for the Fare Collection System project, who must be empowered to act on behalf of the Contractor.

Credit Card: A bank-issued card that provides credit to the user and is used for the purchase/revaluation of fare media.

Days: Unless otherwise designated, days as used in the Contract Documents will be understood to mean calendar days.

Debit (ATM) Card: A bank-issued card that draws funds from the user's account and is used for the purchase/revaluation of fare media.

Defect: The inability of a system, subsystem, assembly, or component to perform its required function. This shall not cover expendable items that are subject to normal wear and aging unless they do not perform adequately within their expected life span, or are a contributing cause to failures in other components.

Delivery: Receipt at MDC of the system in a sound, whole, ready to run, ready to Acceptance Testing condition. The Contractor shall complete and deliver all equipment and materials defined in the Contract Documents, to designated delivery points.

Design Review: Applies to the stages of system development where equipment and procedures are demonstrated prior to receiving approval to advance the effort to the next level. Stages include a Preliminary Design Review and a Final Design Review.

Downloading: The process of transferring data from AFC Central Computer System to the Garage/Depot Computer Systems and Station LANs.

DTPW: Department of Transportation and Public Works

EMV: A technical standard for smart payment cards and for payment terminals and automated teller machines that can accept them. EMV (Europay, MasterCard and Visa) cards are smart cards (also called chip cards or IC cards) which store their data on integrated circuits rather than magnetic stripes, although many EMV cards also have stripes for backward compatibility.

End Product:
a. The Contract Item(s) to be purchased by MDC in accordance with the Contract Documents.
b. End Product(s) includes, but is not limited to, drawings, specifications, instructions, books, education programs, spare parts and/or services.

Equal: The make or quality of material or equipment in this Contract, the Agency's decision as to whether any material or equipment proposed is equal to that specified shall be binding on both the Contractor and MDC.

Failure: The inability of a system, subsystem, assembly, or component to perform its required function. An improper condition requiring the equipment/Fare Collection System to be withheld from or removed from service for corrective action. Refer to Specification for further details.

Fail Safe:
a. A characteristic of a system which insures that any malfunction affecting safety shall cause the system to revert to a state that is known to be safe.
b. To be considered "fail safe", the systems shall also automatically furnish an acceptable indication in accordance with the Specification that a failure has occurred.

Fare Media: The cards, tickets, transfers, Proof-of-Payment receipts and passes used to pay the fare or show proof of payment.

Firmware: Computer programs and data loaded in a class of memory that cannot be modified by the computer during normal operation and is not erased by loss of power.

Final Acceptance of AFC System: When all corrective actions and retrofit (if any) have been fully completed, and the System is considered by MDC to be fully compliant with the Contract. Final Acceptance will take place upon completion of existing migration to Cloud Services Upon achievement of Final Acceptance, the Letter of Acceptance shall be deemed to be issued.

Garage/Depot Computer System: A computer located at a bus garage/depot that controls and monitors all relevant bus data collection functions. It monitors the status of probes and receivers to which it is connected and transfers data to the Central Computer System.

Inspector: The person designated by MDC as its quality control representative. The Inspector's authority is derived through the Project Manager.

Intellectual Property: Information, systems, Fare Collection System, programs, processes, technology, services, methodologies, products and any other materials or rights, tangible or

intangible all relating to the AFC project.

Licensee: One to whom a license is granted.

Licensor: One who owns the Fare Collection System and all portions thereof.

Local Area Network: A data communication network used to connect multiple computer workstations in close proximity to one another, i.e., in one office or building.

Maintenance, Corrective: The action performed, as a result of a failure, to restore an item to a specified condition.

Maintenance, Preventive: The action performed in an attempt to maintain an equipment or operating function in a specified condition by providing systematic inspection and maintenance.

Manufacturer: Shall mean the original manufacturer supplying materials, equipment/Fare Collection System, or apparatus for installation or usage by MDC.

Material (Supplies): Any substances specified for use in the construction and/or manufacture of the Procurement End Product(s), or to be furnished to MDC as loose items as part of the Procurement.

MDC: To mean Miami-Dade County, a political subdivision of the State of Florida.

Notice: Shall mean a written notice.

Option: A unilateral right in a contract by which, for a specified time, a grantee may elect to purchase additional equipment, supplies, or services called for by the contract, or may elect to extend the term of the contract.

Party, Parties: Entity(ies) entering into the agreement.

Personal Identification Number: A unique security code number used in conjunction with a bank card to access the cardholder's account.

Preexisting Work: Work completed and/or owned by the Contractor that may be provided to MDC for the AFC project within the Terms of the Contract.

Project: The project as described in the Contract documents.

Project Manager: Project Manager means the Contracting Officer's authorized representative having the responsibility to oversee and manage the day to day activities of a contract.

Proof Of Payment: A method of fare collection whereby the patron purchases a ticket from a Ticket vending machine, which is retained by the patron for presentation to a fare inspector who roams the system and inspects tickets on a random basis.

Proposal: The Offer in response to MDC's Request, including the Contract Documents with Specifications, to be submitted in the prescribed manner, properly signed and certified using the forms provided by MDC as required and all data to be supplied by the to be in conformance with said Documents. The Proposal includes the Price Proposal.

Proposer: Any individual, proposer, partnership, corporation or joint venture submitting a Proposal for the work contemplated, acting directly or through a duly authorized representative.

Redundancy: The existence in a system of more than one means to accomplish a given function, for the purpose of increasing security or reliability.

Reference: Where reference is made in the Contract Documents to publications or standards issued by associations or societies, the intent shall be to specify the current edition of such publications or standards in effect on the date of the Proposal, notwithstanding any reference to a particular date.

Related Defect: Damage inflicted on any component or subsystem as a direct result of a defect.

Reliability: The probability of performing a specified function, without failure and within design parameters, for the period of time intended under actual operating conditions.

Representative: Shall mean any duly authorized agent of MDC or the Contractor.

Retrofit: A System wide modification.

Revenue Service: Utilization of fare collection equipment for the purpose of collecting fares from County's patrons, notwithstanding if a Letter of Acceptance has been issued.

Service: as in Service Use. Operation of the System under normal conditions with passengers.

Smart Card: A credit card size card containing an integrated circuit chip on which electronic value and data can be stored and deducted or used or a type of pass with period of validity encoded.

Smart Card Reader: A device used by a passenger to show that the fare has been paid when stored value fare media is used, to initialize a rolling period pass purchased from an outlet and to display fare media validity information to a passenger.

Standard: Something set up and established by authority as a rule for the measure of quantity, weight, extent, value, or quality.

State: The State of Florida.

Stockpile: A gradual accumulation of a reserve. For purposes of this Contract, no stockpiling of unaccepted equipment on MDC's property will be allowed.

Stored Value Card: A magnetically encoded document or smart card with a specified dollar value that provides access to designated portions of MDC's systems. The value and data on the card is reduced with each use. See also Pass and Ticket.

Supplier (Vendor): The persons, Proposer, or corporations who furnish materials/services to the Contractor. Supplier furnished materials/services shall comply with all the contract requirements.

System: The Automated Fare Collection Modernization.

Transaction: The data stored by any device in the AFC System due to processing a passenger, the advent an event and/or an alarm, the initiation of a function within the devices or the change in the status of a device, module, item of equipment or system. Sizing of memory for any device shall be based on the largest record size for any transaction generated by the AFC System.

Transit Day: A 24-hour period defined by a MDC to determine the validity of time-based fares and for report reproduction.

User Configurable/Settable: To mean Miami-Dade County will be able to make changes without the need for source code modification or Contractor support.

ARTICLE 3. ORDER OF PRECEDENCE

If there is a conflict between or among the provisions of this Agreement, the order of precedence is as follows: 1) these terms and conditions, 2) the Scope of Services (Appendix A), and 3) the Contractor's Proposal.

ARTICLE 4. RULES OF INTERPRETATION

a) References to a specified Article, section or schedule shall be construed as reference to that specified Article, or section of, or schedule to this Agreement unless otherwise indicated.

b) Reference to any agreement or other instrument shall be deemed to include such agreement or other instrument as such agreement or other instrument may, from time to time, be modified, amended, supplemented, or restated in accordance with its terms.

c) The terms "hereof", "herein", "hereinafter", "hereby", "herewith", "hereto", and "hereunder" shall be deemed to refer to this Agreement.

d) The titles, headings, captions and arrangements used in these Terms and Conditions are for convenience only and shall not be deemed to limit, amplify or modify the terms of this Contract, nor affect the meaning thereof.

ARTICLE 5. NATURE OF THE AGREEMENT

a) This Agreement incorporates and includes all prior negotiations, correspondence, conversations, agreements, and understandings applicable to the matters contained in this Agreement. The parties agree that there are no commitments, agreements, or understandings concerning the subject matter of this Agreement that are not contained in this Agreement, and that this Agreement contains the entire agreement between the parties as to all matters contained herein. Accordingly, it is agreed that no deviation from the terms hereof shall be predicated upon any prior representations or agreements, whether oral or written. It is further agreed that any oral representations or modifications concerning this Agreement shall be of no force or effect, and that this Agreement may be modified, altered or amended only by a written amendment duly executed by both parties hereto or their authorized representatives.

b) The Contractor shall provide the services set forth in the Scope of Services, and render full and prompt cooperation with the County in all aspects of the Services performed hereunder.

c) The Contractor acknowledges that this Agreement requires the performance of all things necessary for or incidental to the effective and complete performance of all Work and Services under this Contract in accordance with the Scope of Services.

d) The Contractor shall furnish all labor, materials, tools, supplies, and other items required to perform the Work and Services that are necessary for the completion of this Contract. All Work and Services shall be accomplished at the direction of the County's Project

Manager in accordance with the Scope of Services.

e) The Contractor acknowledges that the County shall be responsible for making all policy decisions regarding the Scope of Services. The Contractor agrees to provide input on policy issues in the form of recommendations. The Contractor agrees to implement any and all changes in providing Services hereunder as a result of a policy change implemented by the County, in accordance with Article 41. The Contractor agrees to act in an expeditious and fiscally sound manner in providing the County with input regarding the time and cost to implement said changes and in executing the activities required to implement said changes.

ARTICLE 6. CONTRACT TERM

The Contract shall become effective on the date of the Agreement, for a term of eleven (11) years six (6) months. This Contract may be extended by mutual agreement between the County and the Contractor, upon approval by the Board of County Commissioners.

ARTICLE 7. NOTICE REQUIREMENTS

All notices required or permitted under this Agreement shall be in writing and shall be deemed sufficiently served if delivered by Registered or Certified Mail, with return receipt requested; or delivered personally; or delivered via fax or e-mail (if provided below) and followed with delivery of hard copy; and in any case addressed as follows:

(1) to the County

a) to the Project Manager:
Miami-Dade County
Attention: Hector Garnica
Phone: 786-469-5126
E-mail: hectorg@miamidade.gov

and,

b) to the Contract Manager:

Miami-Dade County
Internal Services Department, Procurement Management Division
111 N.W. 1st Street, Suite 1375
Miami, FL 33128-1974
Attention: Sr. Assistant Director
Phone: (305) 375-2363
Fax: (305) 375-2316
E-mail: msinger@miamidade.gov

(2) to the Contractor

Attention: Michael Andranovich
Phone: 858-344-9482
E-mail: Michael.Andranovich@Cubic.com

Either party may at any time designate a different address and/or contact person by giving notice as provided above to the other party. Such notices shall be deemed given upon receipt by the addressee.

ARTICLE 8. PAYMENT FOR SERVICES/AMOUNT OBLIGATED

The compensation for all Work and Services performed under this Contract, including all costs associated with such Work and Services, shall be in the total amount of THIRTY-THREE MILLION SEVENTY-SEVEN THOUSAND EIGHTY-THREE DOLLARS ($33,077,083.00). The County shall have no obligation to pay the Contractor any additional sum in excess of this amount, except for a change and/or modification to the Contract, which is approved and executed in writing by the County and the Contractor.

All Services undertaken by the Contractor before County's approval of this Contract shall be at the Contractor's risk and expense.

ARTICLE 9. PRICING

Prices shall remain firm and fixed for the term of the Contract, including any unexpired option or extension periods; however, the Contractor may offer incentive discounts to the County at any time during the Contract term, including any renewal or extension thereof. The validity period for the EMV Compliance Option is one year from Contract Date.

ARTICLE 10. METHOD AND TIMES OF PAYMENT

The Contractor agrees that under the provisions of this Agreement, the Contractor may bill the County periodically, but not more than once per month, upon invoices certified by the Contractor pursuant to Appendix B – Price Schedule. All invoices shall show the County's contract number, and shall have a unique invoice number assigned by the Contractor. It is the policy of Miami-Dade County that payment for all purchases by County agencies and the Public Health Trust shall be made in a timely manner and that interest payments be made on late payments. All firms, including Small Business Enterprises, providing goods and services to the County, shall receive payment to maintain sufficient cash flow. In accordance with Florida Statutes, Section 218.74 and Section 2-8.1.4 of the Miami-Dade County Code, the time at which payment shall be due from the County or the Public Health Trust shall be forty-five (45) days from receipt of a proper invoice. All payments due from the County or the Public Health Trust, and not made within the time specified by this section shall bear interest from thirty (30) days after the due date at the rate of one percent (1%) per month on the unpaid balance. Further, proceedings to resolve disputes for payment of obligations shall be concluded by final written decision of the County Mayor, or his or her designee(s), not later than sixty (60) days after the date on which the proper invoice was received by the County or the Public Health Trust.

In accordance with Miami-Dade County Implementing Order 3-9, Accounts Receivable Adjustments, if money is owed by the Contractor to the County, whether under this Contract or for any other purpose, the County reserves the right to retain such amount from payment due by County to the Contractor under this Contract. Such retained amount shall be applied to the amount owed by the Contractor to the County. The Contractor shall have no further claim to such retained amounts which shall be deemed full accord and satisfaction of the amount due by the County to the Contractor for the applicable payment due herein.

Invoices and associated back-up documentation shall be submitted in duplicate by the Contractor to the County, to a designated location. The County may at any time designate a different address and/or contact person by giving written notice to the other party.

ARTICLE 11. PROGRESS PAYMENTS

a) The Agreement is subject to the availability of funds and the County's obligation under the Agreement is contingent upon the availability of such funds from which payment for

the Agreement can be made. No obligation on the part of the County for any payment shall arise until such funds are made available to the County for the Agreement and until the Contractor receives written notice of such availability from the County.

b) The County will make progress payments to the Contractor in accordance with the total Price of the Automated Fare Collection Modernization, including any Options exercised by DTPW, found in the Contractor's Proposal, as specified in Exhibits A-1 and A-2 hereto, and applied to each of the milestones set forth below. Payments will be made during the course of Contractor's satisfactory performance of the Work, on approved Invoices submitted by the Contractor.

c) Mutually agreeable adjustments to the payment schedule to permit a neutral cash flow will be made as required. Progress payment invoices shall not be submitted by the Contractor until after satisfactory completion of each of the milestones set forth below and shall not exceed the following stated corresponding percentages of the total Price of the Automated Fare Collection Modernization, including any Options exercised by DTPW, for each milestone:

Progress Payment Milestones				
Payment	Payment Milestone	Incremental Payment %	*Date (days after NTP*)*	Cumulative Payment %
A	NTP	20%	NTP	20%
B	Completion of PDR	5%	62	25%
C	Completion of CDR	5%	155	30%
D	Cloud Core DSAT	7%	217	37%
E	Cloud Core SIT	7%	217	44%
F	Cloud Core Comp Testing Environment	10%	217	54%
G	Cloud Core Comp Prod Environment	23%	248	77%
H	Sys Enhancements DSAT	3%	465	80%
I	Sys Enhancements SIT	3%	496	83%
J	Sys Enhancements Comp Testing Environment	5%	527	88%
K	Sys Enhancements Comp Production Environment	12%	558	100%

*NTP: Notice To Proceed

d) Invoices for progress payments shall be submitted by the Contractor on forms supplied by the County. Each invoice shall be supported, as required by the Contract Documents, with evidence that the activities associated with the Milestone Payments have been completed. Contractor's invoices shall be submitted to the County.

e) Each invoice shall include:

(A) Agreement number;

(B) Serial number(s) of Fare Collection System invoiced (if applicable) and all documents required by Contract Documents;

(C) Total invoice amount.

The Contractor shall certify, in each invoice, that the Work invoiced has been done and approved by the County and performed in accordance with the requirements of the

Contract Documents.

f) In the event expenditures reimbursed to the Contractor under the Contract Documents are subsequently disallowed by the County, due to accounting errors or changes not in conformity with the Contract Documents, the Contractor shall immediately refund such amounts to the County.

g) After receipt, the County will review and evaluate each invoice for progress payments and the supporting data, and forward same to the County for approval with County's recommendation on payment. No progress payment will be approved by the County until an invoice therefore is received from the Contractor and accepted, and the County has verified that all Work covered thereby has been performed in accordance with the requirements of the Contract Documents.

h) The County will notify the Contractor within fifteen (15) days of receipt of an invoice if there are any issues regarding the invoice. Each County-approved invoice will be paid by the County within forty-five (45) days of the County's receipt of a proper invoice in accordance with Florida Statue 218.74 and section 2-8.1.4 of the Miami-Dade County Code. Milestone payments shall not be construed as relieving the Contractor from sole responsibility for all engineering, material, equipment and work upon which payments have been made and the restoration of all defective work, or as waiving the right of the County to require the fulfillment of all of the requirements of the Contract Documents.

i) Payments made under the Contract Documents by the County shall not be construed as an acceptance of defective work or acceptance of improper material, nor as condoning any omission of required work. No payment or certificate, final or otherwise, shall be construed as relieving the Contractor from its contractual obligations to make acceptable any defects and consequences thereof, discovered in the Work, even when discovered after completion or acceptance of same. No payment or certificate, final or otherwise, shall be construed as a waiver of any of the Contractor's obligations set forth in the Contract Documents.

j) No progress payments will be owed or made for any portion of the Work not in accordance with the requirements of the Contract Documents.

k) The County may withhold payment of any progress payment due the Contractor until the Contractor has performed all applicable administrative tasks to be completed as required by the Contract Documents. Also, if documents, data, samples, drawings, and submittals or any part thereof required to be supplied by the Contractor pursuant to the Contract Documents are not delivered within the time specified by the Contract Documents, or are deficient upon delivery, the County may, until such documents, data, samples, drawings or submittals are delivered or the deficiencies are corrected, withhold any monies due or that may become due to the Contractor. The withholding of any payments to the Contractor shall not be construed as a waiver of any rights accruing to the County under the Contract Documents or according to law.

ARTICLE 12. AGREEMENT ADMINISTRATION CLOSE–OUT

The following list of items collectively constitutes the administration close–out work for the Agreement:

(1) The Contractor supplying a general release to the County in a form to be supplied by the County;

(No bonds)

(3) For non–Florida corporations, the necessary certificates from the Florida Department of Revenue and Department of Labor and Industry, Bureau of Unemployment Compensation;

(4) Release of all claims and liens against the County, arising by virtue of the Agreement;

(5) Finalized Operation and Maintenance Manuals;

(6) Finalized spare parts, catalogs and/or lists; and

All of the above listed items shall be completed and submitted to the County at the latest, within thirty (30) days after the completion by the Contractor and the acceptance by the County of all other portions of the Work. Agreement Administration Close–Out shall not be considered complete until all five (5) items (abovementioned) which comprise the Agreement Administration Close–Out work are completed in a manner acceptable to the County.

ARTICLE 13. FINAL PAYMENT

a) Within thirty (30) days after the completion by the Contractor and acceptance by the County of all portions of the Work, the Contractor shall prepare and submit an invoice for the final payment. Prior pay estimates and payments shall be subject to correction on the proposed final payment.

b) The County will review the Contractor's invoice for the final payment. Any changes or corrections found necessary by the County will be submitted to the Contractor for revision. Within ten (10) days thereafter, the Contractor shall submit to the County an invoice for the final payment incorporating any changes or corrections made by the County. Said invoice will then be reviewed by the County and if approved by the County, this estimate will become the approved final payment. If, however, an invoice for the final payment is not submitted by the Contractor within sixty (60) days after the completion by the Contractor and acceptance by the County of all portions of the Work, the County may elect to make payment of such sums which are not in dispute, without prejudice to the rights of either the County or the Contractor in connection with such sums which are in dispute.

c) Upon approval of the invoice for the final payment by the County, and after completion of the Agreement Administration Close–Out items as provided in Article 12, the County will issue a Letter of Acceptance. The Letter of Acceptance shall certify that all the Work has been completed and accepted as of the date of the Letter of Acceptance subject to any guarantee or warranty, expressed or implied, provided by the Contractor or pursuant to the Contract Documents. The issuance by the County of the Letter of Acceptance shall not be construed to be acceptance by the County of any defective or inferior work, improper materials, or work not adhering to the requirements of the Contract Documents. The County will transmit copies of the Letter of Acceptance to the Contractor and other appropriate interested agencies.

d) The County will make final payment to the Contractor within thirty (30) days after issuance of the Letter of Acceptance. Such final payment shall constitute full and complete payment to the Contractor for the Work.

ARTICLE 14. ALLOWANCE ITEM(S)

a) The establishment of a budget allowance in the award amount to the Contractor is a method of allocating funds to portions of the work that cannot be specified with sufficient particularity at the time of contract award. The County exclusively reserves the right to identify work to be performed by the Contractor that will be charge under the allowance item(s). The amount of additional work applied to an allowance will be accepted by the parties, in accordance with change order provisions of the Agreement; however the payment of this work will be deducted from the allowance.

b) Upon the completion of work, if the net amount of additional work ordered and applied to the allowance exceeds the contract allowance amount, the excess will be applied to an additive change order or, when it is less, applied to a deductive change order.

ARTICLE 15. INDEMNIFICATION AND INSURANCE

Contractor shall indemnify and hold harmless the County and its officers, employees, agents and instrumentalities from any and all liability, losses or damages, including attorneys' fees and costs of defense, which the County or its officers, employees, agents or instrumentalities may incur as a result of claims, demands, suits, causes of actions or proceedings of any kind or nature arising out of, relating to or resulting from the performance of this Agreement by the Contractor or its employees, agents, servants, partners principals or subcontractors. Contractor shall pay all claims and losses in connection therewith and shall investigate and defend all claims, suits or actions of any kind or nature in the name of the County, where applicable, including appellate proceedings, and shall pay all costs, judgments, and attorney's fees which may issue thereon. Contractor expressly understands and agrees that any insurance protection required by this Agreement or otherwise provided by Contractor shall in no way limit the responsibility to indemnify, keep and save harmless and defend the County or its officers, employees, agents and instrumentalities as herein provided.

The Contractor shall furnish to the Internal Services Department / Procurement Management Services, 111 NW 1st Street, Suite 1300, Miami, Florida 33128-1989, Certificate(s) of Insurance which indicate that insurance coverage has been obtained which meets the requirements as outlined below:

A. Worker's Compensation Insurance for all employees of the Contractor as required by Florida Statute 440.

B. Commercial General Liability Insurance on a comprehensive basis, in an amount not less than $300,000 combined single limit per occurrence for bodily injury and property damage. Miami-Dade County must be shown as an additional insured with respect to this coverage.

C. Automobile Liability Insurance covering all owned, non-owned and hired vehicles used in connection with the work, in an amount not less than $300,000 combined single limit per occurrence for bodily injury and property damage.

D. Professional Liability Insurance in the amount of $1,000,000 per claim.

E. Cyber Liability Insurance to include Privacy and Media Liability in an amount not less than $1,000,000 per occurrence. Miami Dade County must be shown as an additional insured with respect to this coverage.

All insurance policies required above shall be issued by companies authorized to do business under the laws of the State of Florida, with the following qualifications:

The company must be rated no less than "A-" as to management, and no less than "Class VII" as to financial strength by Best's Insurance Guide, published by A.M. Best Company, Oldwick, New Jersey, or its equivalent, subject to the approval of the County Risk Management Division.

or

The company must hold a valid Florida Certificate of Authority as shown in the latest "List of All Insurance Companies Authorized or Approved to Do Business in Florida" issued by the State of Florida Department of Financial Services.

NOTE: CERTIFICATE HOLDER MUST READ: MIAMI-DADE COUNTY
111 NW 1st STREET
SUITE 2340
MIAMI, FL 33128

ARTICLE 16. MANNER OF PERFORMANCE

a) The Contractor shall provide the Services described herein in a competent and professional manner satisfactory to the County in accordance with the terms and conditions of this Agreement. The County shall be entitled to a satisfactory performance of all Services described herein and to full and prompt cooperation by the Contractor in all aspects of the Services.

b) The Contractor agrees that at all times it will employ, maintain and assign to the performance of the Services a sufficient number of competent and qualified professionals and other personnel to meet the requirements to which reference is hereinafter made.

c) The Contractor warrants and represents that its personnel have the proper skill, training, background, knowledge, experience, rights, authorizations, integrity, character and licenses as necessary to perform the Services described herein, in a competent and professional manner.

d) The Contractor shall at all times cooperate with the County and coordinate its respective work efforts to most effectively and efficiently maintain the progress in performing the Services.

e) The Contractor shall comply with all provisions of all federal, state and local laws, statutes, ordinances, and regulations that are applicable to the performance of this Agreement.

ARTICLE 17. NOT USED IN CONTRACT

ARTICLE 18. INDEPENDENT CONTRACTOR RELATIONSHIP

The Contractor is, and shall be, in the performance of all work services and activities under this Agreement, an independent contractor, and not an employee, agent or servant of the County. All persons engaged in any of the work or services performed pursuant to this Agreement shall

at all times, and in all places, be subject to the Contractor's sole direction, supervision and control. The Contractor shall exercise control over the means and manner in which it and its employees perform the work, and in all respects the Contractor's relationship and the relationship of its employees to the County shall be that of an independent contractor and not as employees and agents of the County. Each employee shall have and wear proper identification.

The Contractor does not have the power or authority to bind the County in any promise, agreement or representation other than specifically provided for in this Agreement.

ARTICLE 19. AUTHORITY OF THE COUNTY'S PROJECT MANAGER

The Contractor hereby acknowledges that the County's Project Manager will, acting reasonably, determine in the first instance all questions of any nature whatsoever arising out of, under, or in connection with, or in any way related to or on account of, this Agreement including without limitations: questions as to the value, acceptability and fitness of the Services; questions as to either party's fulfillment of its obligations under the Contract; negligence, fraud or misrepresentation before or subsequent to acceptance of the Contractor's Proposal; questions as to the interpretation of the Scope of Services; and claims for damages, compensation and losses. Should the parties not reach an agreement, the terms of Article 42 shall then apply.

ARTICLE 20. MUTUAL OBLIGATIONS

a) This Agreement, including attachments and appendices to the Agreement, shall constitute the entire Agreement between the parties with respect hereto and supersedes all previous communications and representations or agreements, whether written or oral, with respect to the subject matter hereto unless acknowledged in writing by the duly authorized representatives of both parties.

b) Nothing in this Agreement shall be construed for the benefit, intended or otherwise, of any third party that is not a parent or subsidiary of a party or otherwise related (by virtue of ownership control or statutory control) to a party.

c) In those situations where this Agreement imposes an indemnity obligation on the Contractor, the County may, at its expense, elect to participate in the defense if the County should so choose. Furthermore, the County may at its own expense defend or settle any such claims if the Contractor fails to diligently defend such claims, and thereafter seek indemnity for costs from the Contractor.

ARTICLE 21. QUALITY ASSURANCE/QUALITY ASSURANCE RECORD KEEPING

The Contractor shall maintain, and shall require that its subcontractors and suppliers maintain, complete and accurate records to substantiate compliance with the requirements set forth in the Scope of Services. The Contractor and its subcontractors and suppliers, shall retain such records, and all other documents relevant to the Services furnished under this Agreement for a period of three (3) years from the expiration date of this Agreement and any extension thereof.

ARTICLE 22. AUDITS

The County, or its duly authorized representatives or governmental agencies, shall until the expiration of three (3) years after the expiration of this Agreement and any extension thereof, have access to and the right to examine and reproduce any of the Contractor's books, documents, papers and records and of its subcontractors and suppliers which apply to all matters of the County. Such records shall subsequently conform to Generally Accepted Accounting Principles requirements, as applicable, and shall only address those transactions

related to this Agreement.
(Covered above)
(Covered in Article 54)

ARTICLE 24. CONSENT OF THE COUNTY REQUIRED FOR ASSIGNMENT

The Contractor shall not assign, transfer, convey or otherwise dispose of this Agreement, including its rights, title or interest in or to the same or any part thereof without the prior written consent of the County.

ARTICLE 25. SUBCONTRACTUAL RELATIONS

If the Contractor will cause any part of this Agreement to be performed by a Subcontractor, the relevant provisions of this Contract will apply to such Subcontractor and its officers, agents and employees in all respects as if it and they were employees of the Contractor; and the Contractor will not be in any manner thereby discharged from its obligations and liabilities hereunder, but will be liable hereunder for all acts and negligence of the Subcontractor, its officers, agents, and employees, as if they were employees of the Contractor. The services performed by the Subcontractor will be subject to the provisions hereof as if performed directly by the Contractor.

ARTICLE 26. NOT USED IN CONTRACT

ARTICLE 27. SEVERABILITY

If this Agreement contains any provision found to be unlawful, the same shall be deemed to be of no effect and shall be deemed stricken from this Agreement without affecting the binding force of this Agreement as it shall remain after omitting such provision.

ARTICLE 28. TERMINATION AND SUSPENSION OF WORK

a) The County may terminate this Agreement if an individual or corporation or other entity attempts to meet its contractual obligation with the County through fraud, misrepresentation or material misstatement.

b) The County may, as a further sanction, terminate or cancel any other contract(s) that such individual or corporation or other entity has with the County and that such individual, corporation or other entity shall be responsible for all direct costs associated with such termination or cancellation, including attorney's fees.

c) The foregoing notwithstanding, any individual, corporation or other entity which attempts to meet its contractual obligations with the County through fraud, misrepresentation or material misstatement may be debarred from County contracting for up to five (5) years in accordance with the County debarment procedures. The Contractor may be subject to debarment for failure to perform and all other reasons set forth in Section 10-38 of the County Code.

d) In addition to cancellation or termination as otherwise provided in this Agreement, the County may at any time, in its sole discretion, with or without cause, terminate this Agreement by written notice to the Contractor.

e) In the event that the County exercises its right to terminate this Agreement, the Contractor shall, upon receipt of such notice, unless otherwise directed by the County:

i. stop work on the date specified in the notice ("the Effective Termination Date");

ii. take such action as may be necessary for the protection and preservation of the County's materials and property;

iii. cancel orders;

iv. assign to the County and deliver to any location designated by the County any non-cancelable orders for Deliverables that are not capable of use except in the performance of this Agreement and has been specifically developed for the sole purpose of this Agreement and not incorporated in the Services;

v. take no action which will increase the amounts payable by the County under this Agreement; and

f) In the event that the County exercises its right to terminate this Agreement, the Contractor will be compensated as stated in the payment Articles herein for the:

i. portion of the Services completed in accordance with the Agreement up to the Effective Termination Date; and

ii. non-cancelable Deliverables that are not capable of use except in the performance of this Agreement and has been specifically developed for the sole purpose of this Agreement, but not incorporated in the Services.

g) All compensation pursuant to this Article are subject to audit.

ARTICLE 29. EVENT OF DEFAULT

a) An Event of Default shall mean a breach of this Agreement by the Contractor. Without limiting the generality of the foregoing, and in addition to those instances referred to herein as a breach, an Event of Default shall include the following:

i. the Contractor has not delivered Deliverables on a timely basis;

ii. the Contractor has refused or failed to supply enough properly skilled staff personnel;

iii. the Contractor has failed to make prompt payment to subcontractors or suppliers for any Services;

iv. the Contractor has become insolvent (other than as interdicted by the bankruptcy laws), or has assigned the proceeds received for the benefit of the Contractor's creditors, or the Contractor has taken advantage of any insolvency statute or debtor/creditor law or if the Contractor's affairs have been put in the hands of a receiver;

v. the Contractor has failed to obtain the approval of the County where required by this Agreement;

vi. the Contractor has failed to provide "adequate assurances" as required under subsection b below;

vii. the Contractor has failed in the representation of any warranties stated herein.

b) When(Same as original) reasonable grounds for uncertainty exist with respect to the Contractor's ability to perform the Services or any portion thereof, the County may request that the Contractor, within the timeframe set forth in the County's request, but no sooner than thirty (30) days, (Ditto)provide adequate assurances to the County, in writing, of the Contractor's ability to perform in accordance with the terms of this Agreement. Until the County receives such assurances, the County may request an adjustment to the compensation received by the Contractor for portions of the Services which the Contractor has not performed. In the event that the Contractor fails to provide to the County the requested assurances within the prescribed timeframe, the County may:

i. treat such failure as a repudiation of this Agreement; and

ii. resort to any remedy for breach provided herein or at law, including but not limited to, taking over the performance of the Services or any part thereof either by itself or through others.

c) In the event the County shall terminate this Agreement for default, the County or its designated representatives may immediately take possession of all applicable equipment, materials, products, documentation, reports and data.

ARTICLE 30. NOTICE OF DEFAULT - OPPORTUNITY TO CURE

If an Event of Default occurs in the determination of the County, the County may so notify the Contractor ("Default Notice"), specifying the basis for such default, and advising the Contractor that such default must be cured (Impossible)or this Agreement with the County may be terminated. Notwithstanding, the County shall allow the Contractor to rectify the default to the County's reasonable satisfaction within a thirty (30) day period. The County may grant an additional period of such duration as the County shall deem appropriate without waiver of any of the County's rights hereunder, so long as the Contractor has commenced curing such default and is effectuating a cure with diligence and continuity during such thirty (30) day period or any other period which the County prescribes. The default notice shall specify the date the Contractor shall discontinue the Services upon the Termination Date.

ARTICLE 31. REMEDIES IN THE EVENT OF DEFAULT

If an Event of Default occurs, the Contractor shall be liable for all damages resulting from the default, but not to lost revenues. In no event shall this liability exceed the value of all amounts paid to the Contractor under the Contract, plus the difference between the cost associated with procuring Services hereunder and the amount actually expended by the County for re-procurement of Services, including procurement and administrative costs; subject to the County's duty to mitigate damages and, the County may also bring any suit or proceeding for specific performance or for an injunction.

ARTICLE 32. ASSIGNMENT

The Agreement or the performance thereof may not be assigned, sold, transferred or disposed of in any manner by the Contractor, except upon the written consent of the County.

ARTICLE 33. SUBCONTRACTS

a) Prior to the County's review of a proposed agreement, subcontract or purchase order, or proposed Subcontractor or Supplier, the Contractor shall provide the County with the name of the proposed Subcontractor or Supplier, the task to be performed by the proposed Subcontractor or Supplier, and the qualifications of the proposed Subcontractor or Supplier to perform said portion of the Work.

b) The Contractor shall not knowingly enter into any lower tier transactions with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in the Agreement, unless authorized in writing by the County. Furthermore, the Contractor shall include the provisions of this paragraph, without modification, in all lower tier contracts and in all solicitations for lower tier contracts.

c) The Contractor shall be responsible to the County for acts and omissions of actions in relation to its own employees, and for the acts and omissions of any Subcontractor or any Supplier in relation to its employees. The Contractor shall also be responsible for the coordination of the work of all Subcontractors and Suppliers. When a portion of the Work which has been subcontracted by the Contractor is not prosecuted in accordance with the Contract Documents, the Subcontractor or Supplier shall be immediately replaced upon request of the County and shall not again be employed on the Work.

d) The County shall not be responsible for settling any differences between the Contractor and its Subcontractors or Suppliers.

ARTICLE 34. NOTICE TO PROCEED

A written Notice to Proceed will be delivered to the Contractor as soon as possible after execution of the Agreement and approval of insurance certificates or policies by the County. Any insurance certificates must be delivered to the County within five (5) days after execution of the Agreement. The Contractor shall commence work within ten (10) days after receiving the Notice to Proceed and shall thereafter diligently prosecute the Work to completion.

ARTICLE 35. TIME OF COMPLETION

a) The Contractor shall complete all and any designated portion of the Work, within the schedule requirements of the issuance of the Notice to Proceed, unless revised by Change Order, and shall complete certain specified portions of the Work pursuant to the interim milestones set forth in the County approved Project Schedule. Time shall be computed starting with the first day after receipt of the Notice to Proceed and ending with the last day of the Work.

b) Adjustments in Time of Completion shall only be allowed if the work being delayed, or additional work included in a Change Order, falls on the critical path of the Project Schedule or alters such critical path so as to extend the time required for completion of the Work. The critical path shall be determined from the latest approved version of the Contractor's Project Schedule.

c) The Contractor may only be granted or entitled to an adjustment in Time of Completion and not assessed liquidated damages for a delay in the completion of the Work:

(1) Due to a Change Order; or

(2) Due to unforeseen causes beyond the control and without the fault or negligence of

the Contractor such as those caused by act of God or of a public enemy, war, acts of terrorism, sabotage, explosions, fire, floods, unusually severe weather, hurricanes, epidemics, pandemics, quarantine restrictions, strikes and other work stoppage caused by a labor dispute, shortage of materials and freight embargoes, provided that the Contractor has taken reasonable precautions to prevent delays due to such causes ("Force Majeure").

Unusually severe weather is defined as adverse occurrences beyond the weather norms substantiated by the U.S. Department of Commerce in their Local Climate Data as published by the National Oceanic and Atmospheric Administration–Environmental Data Service, in its periodic reports and annual summary. Occurrence of unusually severe weather shall be recorded on the Project Schedule only after a finding of merit by the County.

(3) Due to other causes beyond the Contractor's reasonable control, such as acts of omissions of the County or DTPW, or the County's failure to perform its obligations under this Contract.

The Contractor shall not be entitled, nor shall an adjustment in Time of Completion be granted, for a delay caused by a shortage of materials, except the County-furnished materials, unless the Contractor furnishes to the County documentary proof that the Contractor has diligently made every effort to obtain such materials from all known and reasonable sources. The Contractor shall also submit proof, in the form of critical path analysis data, showing that the inability to obtain such materials when originally planned did in fact cause a delay in the Time of Completion which delay could not be eliminated or reduced by revising the sequence of the Contractor's operations. Only the physical shortage of material shall be considered under this provision as a cause for an adjustment in Time of Completion. No consideration shall be given to any claim that material could not be obtained at a reasonable, practical or economic cost.

d) Within thirty (30) days after the end of a delay, the Contractor shall furnish the County with detailed information concerning the circumstances of the delay, the number of days actually delayed, the appropriate Contract Document references and the measures taken to prevent or minimize the delay. Failure by the Contractor to submit such information shall be sufficient and valid cause for the County to deny the Contractor's request for an adjustment in the Time of Completion. After receipt of such information from the Contractor, the County will decide the length of the adjustment in Time of Completion, if any, to be granted to the Contractor, which decision shall be final and binding upon the Contractor.

e) If the prosecution of a portion of the Work is delayed, other portions of the Work unaffected by the delay shall be diligently prosecuted either to completion or until the prosecution of the delayed portion of the Work can be resumed. A Force Majeure event shall not excuse the County from its obligation to pay monies owed the Contractor.

f) Time is of the essence in the performance of the Work, refer to the project schedule.

ARTICLE 36. LIQUIDATED DAMAGES

a) In the event an Automated Fare Collection System or related equipment is not completed and/or delivered to the County, and/or the Work or a portion thereof is not completed within the number of days or weeks set forth herein, and/or within the County approved Project Schedule, damage will be sustained by the County. In such event, the

Contractor shall pay to the County, as liquidated damages and not as a penalty, the sums set forth below for every day or fraction thereof of delay in completing the referenced portion of the Work and failing to meet the corresponding interim milestone or the Time of Completion. The Contractor shall pay the referenced sums as fixed, and agreed to, liquidated damages, and not by way of a penalty, to the County. The County may deduct the sum of liquidated damages from any monies due or that become due the Contractor under the Agreement or under any other contract with the County, or if such monies are insufficient, the Contractor shall pay to the County any deficiencies in such monies within thirty (30) days of written notice by the County.

b) The remedies provided herein are not intended to preclude the County from terminating this Agreement as provided in the termination provisions herein.

Liquidated Damages	Scheduled Days After NTP	Schedule Extension Days After NTP	Actual LD Dates After NTP	Max Amount Per Day
Cloud Core Completion Production Environment	248	60	308	$1,175
System Enhancements Completion Production Environment	558	60	618	$1,175

c) In no event will the total liquidated damages paid by the Contractor to the County exceed five percent (5%) of the Contract Sum, as it may have been changed from time to time in accordance with the Contract Documents. Liquidated Damages pursuant to the table above are the County's exclusive financial remedy for delays caused by the Contractor.

ARTICLE 37. PROJECT SCHEDULE

The Contractor shall finalize and submit for written approval by the County, and in accordance with Proposal, a Project Schedule which shall: specifically and expressly incorporate each and all of the applicable interim milestones set forth in, and the requirements of the Period of Performance schedule as outlined below; show major milestones and associated tasks; and highlight significant events for the Project:

(1) Approval of the Project Schedule, or any updates thereto, by the County, shall, in no way, waive any requirements of the Contract Documents nor excuse the Contractor from any obligations under the Contract Documents. Upon approval by the County in writing, the approved Project Schedule shall then be the schedule to be used by the Contractor for planning, organizing, and directing the Work and reporting progress.

(2) The Contractor shall prosecute the Work in accordance with the latest approved Project Schedule. Deviations shall be submitted to the County for review and written approval. In the event that the progress of items along the critical path is delayed, the Contractor shall revise its planning as necessary to meet the Time of Completion.

(3) For changes to the Contract Documents which could influence the order of all of or portions of the Work, restraints between various activities, or duration time estimated for activities on the Project Schedule, a determination of the impact of such changes on any interim milestone dates or the Time of Completion shall be

made in accordance with the Contract Documents.

(4) If a Change Order is issued, the Project Schedule shall be changed, if necessary, to reflect the requirements of the Change Order. Changes to the Project Schedule shall be made no later than the next updating after the issuance of the Change Order.

(5) If the Contractor fails or refuses to submit or include the foregoing revisions within thirty (30) days after the date of change, the County will furnish to the Contractor, at the Contractor's expense, the logic, duration time changes, or both, to be entered into the Project Schedule and used in subsequent updating of reports until such time that the change has been settled or until actual dates supersede the estimated dates. Inclusion of a revision in the Project Schedule and use of revised logic or duration time, or both, whether furnished by the Contractor or by the County, will not be construed as an extension of time to the Time of Completion or as a deviation from any other requirements of the Contract Documents.

ARTICLE 38. PROGRESS REPORTS

a) Progress Report shall be submitted in accordance with the requirements of the Proposal.

b) The Contractor shall submit Progress Reports every calendar month during the performance of the Work in accordance with a format approved by the County which shall provide detailed information for the preceding calendar month on the following items, as applicable:

(1) The activities started during the report period and to be started in the next report period;

(2) The activities completed during the report period and those to be completed in the next report period;

(3) Project Schedule deviations and slippage with explanations, a description of their effects on the Work, and plans for correction;

(4) Major problems;

(5) Pending action items requested by the Contractor or the County.

c) Progress Reports shall be submitted electronically by the tenth (10th) day of the month following the reporting period.

ARTICLE 39. SUSPENSION OF WORK

a) The County may, without cause, order the Contractor in writing to suspend or interrupt all or any part of the Work. In no single instance will any period of suspension exceed thirty (30) days. Total time for all periods of suspension will not exceed one hundred fifty (150) days during the initial term of the contract.

b) If the performance of all or any part of the Work is suspended or interrupted per the written request of the County, the Contractor's sole and exclusive remedies in such an event shall be an extension of time and an adjustment to the Contract Sum as determined in accordance with the provisions of the Contract Documents.

No adjustment in the Time of Completion or the Contract Sum, however, shall be allowed for any such suspension or interruption if:

(1) The performance would have been suspended or interrupted under any other Contract clause, including the fault or negligence of the Contractor; or

(2) Any other provision of the Contract Documents provide for an adjustment in the Time of Completion or the Contract Sum.

c) No request for an adjustment in the Time of Completion or the Contract Sum shall be allowed under this provision unless the request is asserted in writing to the County within sixty (60) days after the termination of such suspension or interruption and not later than the date of the issuance of the Letter of Acceptance.

ARTICLE 40. CONTROL OF WORK

a) The Project Manager will be the County's representative for the Work until the issuance of the Letter of Acceptance.

b) The Project Manager will act on behalf of the County to the extent provided in the Contract Documents, unless modified in writing by the County.

c) All instructions issued by the Project Manager shall have the same force and effect as if issued by the County.

d) The County shall have access to the Work at all times and the Contractor shall provide facilities required for safe access to enable the County to perform the County's functions and responsibilities under the Contract Documents.

e) Whenever under the Contract Documents a decision, agreement, approval, or interpretation or the like is made subject to the County's sole discretion, sole judgment or to be taken in the County's sole opinion or determination, the County, in making any such decisions, agreement, approval or interpretation, will act reasonably. The County has the authority to issue a Stop Work Order to stop a specific work activity if the Work is not being executed by the Contractor in accordance with the Contract Documents. Any costs incurred by the Contractor as a result of the issuance of a Stop Work Order arising out of the work not being executed by the Contractor in accordance with the Contract Documents shall be paid by the Contractor. Should the Contractor disagree with the issuance of the Stop Work Order, it shall follow the procedures set forth in Article 42.

ARTICLE 41. CHANGES

a) The County may, at any time, without invalidating the Agreement and without notice to the Sureties, by a written Change Order, order modifications in the Work and/or the Contract Documents, including changes, modifications, additions or deletions.

b) The Contractor may, at any time, submit in writing to the County proposed modifications to the Work. The County will review such proposals and recommend the approval or denial of such proposed modifications to the County, and the County, at its sole discretion, may either approve or deny such proposed modifications.

Upon accepting modifications proposed by the Contractor, the County will execute and issue a Change Order. The denial by the County of the Contractor's proposed

modification shall neither provide the Contractor with any basis for a claim for damages nor an adjustment of the Time of Completion, nor shall the denial release the Contractor from its contractual responsibilities under the Contract Documents.

c) Except as herein provided, no order, statement or conduct of the County shall be treated as a Change Order or entitle the Contractor to additional compensation or an equitable adjustment hereunder.

d) If any Change Order causes an increase or decrease in the Contractor's cost of, or the time required for, the performance of any part of the Work, an equitable adjustment will be made and the Agreement will be accordingly modified in writing.

e) Adjustments in the Contract Sum resulting from a change, modification, addition or deletion in the Work shall be determined by mutual agreement between the Parties.

f) No allowance shall be made or recovery be allowed to the Contractor for loss of anticipated profit or overhead recovery as a result of a portion of the Work not being performed by reason of a change, modification, addition or deletion in the Work.

f) Adjustments in the Time of Completion of the Contract shall only be allowed if the Work included in the change, modification, addition or deletion falls on the critical path of the Project Schedule or alters such critical path so as to extend the time required for completion of the Work. The critical path will be determined from the latest approved version of the Contractor's Project Schedule.

g) MDC shall have the right at any time during the progress of the Work to increase or decrease the Work. Promptly after being notified of a change, the Contractor shall submit an itemized estimate of any cost or time increases or savings it foresees as a result of the change. Except in an emergency endangering life or property, or for minor changes ordered by the Contracting officer, no addition or changes to the Work shall be made except upon written order of MDC, and MDC shall not be liable to Contractor for any increased compensation or adjustment to the Contract Time without such written order. No officer, employee or agent of MDC is authorized to orally direct any increase or decrease in the Work.

h) The Contractor's written acceptance of a Change Order, absent a written reservation of rights, shall constitute the Contractor's final and binding agreement to the provisions thereof and a waiver by the Contractor of any direct claims, resulting therefrom. Disagreement with a Change Order shall in no way excuse the Contractor from complying with, and prosecuting, the work set forth in the Change Order. Should the Contractor disagree with any Change Order, it shall, within thirty (30) days after receipt of the Change Order, submit to the County a written statement specifically setting forth the nature and monetary extent of such disagreement. No such claim by the Contractor shall be considered if it is asserted after the earlier of thirty (30) days of Contractor's receipt of the Change Order or after final payment under the Agreement has been made.

ARTICLE 42. CLAIMS AND DISPUTES

a) All actions, claims and disputes arising out of, under, or related to, the Agreement, the Contract Documents or for a breach thereof, except as provided in or limited by written acceptance of a Change Order, condition precedent; limitation on commencement, County's decision final and binding, sixty day period and waiver by final payment, shall only be commenced in a court of competent jurisdiction in Miami, Miami-Dade County, Florida and the Contractor hereby consents and submits to the jurisdiction of such court.

b) As an express condition precedent to the Contractor's right to commence a court proceeding, the Contractor shall provide to the County:

(1) A written claim which shall set forth, in detail, the amount of additional compensation or time claimed and the basis for the claim and the amount claimed;

(2) All materials utilized by the Contractor in preparation of its Proposal, including, but not limited to, all worksheets, quotations, calculations, pricing data, estimates and correspondence relating thereto;

(3) Written evidence of, and support for, any claim, including evidence regarding liability, causation and damages, sufficient to enable the County Mayor or his designee to render a decision with respect to such claim; and

(4) Such other information as the County may reasonably request. Such claim and supporting information and evidence must be presented to the County within thirty (30) days of the Contractor's first knowledge of the beginning of the event giving rise to such claim. Failure to provide all such information and evidence will be just cause for the County denying the claim. Within ninety (90) days of receiving all such information and evidence, the County Mayor or his designee(s), will render a written decision with respect to the claim.

In the event the Contractor and County are unable to resolve their differences concerning any determination made by the County or any dispute or claim arising under or relating to the Contract, either the Contractor or County may initiate a dispute in accordance with the procedure set forth in this Section. Exhaustion of these procedures shall be a precondition to any lawsuit permitted hereunder.

The parties hereto further agree that, in any such proceeding, evidence and live testimony may be presented, in accordance with the Florida Rules of Evidence, and the right to cross-examine each other's witnesses. The parties to this contract hereby authorize the County Mayor or his designee(s), to decide all questions, disputes or claims of any nature whatsoever arising out of, under, or in connection with, or in any way related to or on account of, this Contract and his decision shall be conclusive, final and binding on the parties except to the extent either party initiates a legal action in a court of competent jurisdiction.

Any such court action must be filed within one (1) year of Final Payment under this Contract or within sixty (60) days of the County Mayor or designee's decision, whichever is later.

Pending final decision of a dispute hereunder, the CONTRACTOR shall proceed diligently with the performance of the Contract and in accordance with the County's interpretation.

c) No court proceeding arising from any such claim, dispute, or other matter shall or may be commenced by the Contractor until the earlier of:

(1) The date on which the County Mayor or his designee(s) has rendered a written decision; or

(2) The ninetieth (90th) day after the Contractor has presented its claim to the County Mayor with all the materials and evidence required by the Contract, if the County

has not rendered its written decision by that date.

d) Unless otherwise agreed in writing by the County, the Contractor shall carry on and maintain the progress of the Work during pendency of any claim or court proceeding.

e) Any court proceeding or action arising out of, under, or in connection with, the Agreement, the Contract Documents, a breach thereof, shall be conducted in accordance with, and governed by, the laws of the State of Florida.

f) Should the Contractor sustain any damage or costs in the form of damages to or loss of its equipment or property or personal injury solely through any act or omission of any other contractor having a contract with the County, a subcontractor of such a contractor or any other person or entity, the Contractor shall have no claim against the County or the County for such damage or costs, but instead, shall only have the right to recover such damage or costs from such other contractor, subcontractor, entity or person.

g) The Contractor agrees to include the above clause in each subcontract to the Agreement.

h) Nothing herein shall be construed to waive or diminish the procedures and limitations of liability found ss. 768.26, Florida statutes.

i) Except for, and/or to the extent covered by, liquidated damages incurred, neither party to the Agreement shall be liable to the other party for any special, incidental, indirect, consequential, exemplary or punitive damages which may be suffered by either of them, including the loss of profits or revenue. This limitation shall not apply to or affect, in any way: any obligation of the Contractor to indemnify and/or hold harmless the County for claims of third parties (including employees of the Contractor or the County); claims for personal injury and/or third-party property damage; recovery under any insurance provided or acquired by the Contractor; or the Contractor's liability resulting or arising from its gross negligence or willful or intentional misconduct. Except as noted above, the total liability of either party under this Agreement shall be limited to the amount paid under the Agreement.

ARTICLE 43. QUALITY ASSURANCE

The Contractor's Quality Assurance Plan and associated activities shall be subject to MDC's verification at any time. Contents of QAP:

i) Quality Assurance System: The QA system shall include those processes necessary to address key activities affecting quality; provide control over activities affecting quality consistent with their importance; provide for the planning and accomplishment of activities affecting quality under suitably controlled conditions. Controlled conditions shall include the use of appropriate equipment, suitable environmental conditions for accomplishing the activity, and assurance that the prerequisites for any given activities have been satisfied; provide for any special controls, processes, test equipment, tools and skills to attain required quality and for necessary verification of quality such as inspection or test; provide orientation and training, as necessary, of personnel performing activities affecting quality to assure that suitable proficiency is achieved and maintained; and require management to regularly assess the adequacy of the QA system and assure its effective implementation.

ii) Design Control: The QA system shall include design control measures to assure

that design specifications, regulatory and code requirements, and engineering standards are correctly applied to drawings, specifications, procedures, and instructions; that appropriate quality standards are specified in the design documents; that selection and review of materials and processes essential to installation are suitable for their application; that design review/checking, and certification by licensed professional engineers are performed; and distribution of all design documents.

iii) Procurement Control: The QA system shall include a procurement control process to assure that design, engineering and services, along with materials, machinery and equipment are procured in accordance with the contract requirements. Procurement documents are to be prepared in detail to include and be reviewed for technical, quality and commercial requirements for all materials, products and services.

iv) Instructions, Procedures and Drawings: Instructions, procedures and drawings shall also prescribe quantitative and qualitative acceptance criteria.

v) Document and Data Control: The QA system shall describe the procedures for issuance, approval, distribution, retention, and maintenance detail of drawings, specifications, reports, procedures, and other quality related documents applicable to the design and construction of the projects. All documents that specify quality requirements or prescribed activities affecting quality shall be controlled to assure that the correct documents are being employed.

vi) Identification and Control of Materials, Parts and Components: The QA system shall include this element to assure that all materials, parts, and components are properly identified and controlled; identification is maintained by part number, serial number or other appropriate means either on the item or on the records that are traceable to the item as required throughout fabrication or construction of the item; and nonconforming work, materials, parts or components are prevented from being incorporated into the final product.

vii) Control of Special Processes: The QA system shall include this element to assure that special processes, including but not limited to welding, heat treating, non-destructive testing, are properly controlled and performed by qualified personnel using approved procedures in accordance with the applicable codes and engineering standards under suitable conditions.

viii) Inspection: The QA system shall include inspection during all phases to assure that requirements of contract documents (e.g. drawings, specifications, instructions, regulatory requirements, applicable codes and standards, etc.) are being complied with by the consultants, contractors, and suppliers.

ix) Test Control: The QA System shall include the element of test control to assure that all testing required to demonstrate that the equipment and systems will perform satisfactorily and are done in accordance with approved procedures; test procedures shall include all prerequisite requirements and acceptance criteria specified in the contract documents; and test results are evaluated by responsible and competent persons.

x) Control of Measuring and Test Equipment: The QA System shall include control of measuring and testing equipment to assure that tools, gauges, instruments, and other

measuring and testing devices used in the activities affecting quality and safety are properly controlled, calibrated, and adjusted at specified pre-determined periods to maintain accuracy within necessary limits; records of issuance and calibration are properly maintained; and measuring and test equipment are identified and marked to indicate calibration status.

xi) Handling, Storage, Shipping, and Preservation: The QA System shall include control of handling, storage, shipping, cleaning and preservation of materials and equipment to prevent damage.

xii) Inspection, Test, and Operating Status: The QA System shall include inspection, test and operating status information to demonstrate (provide evidence) that all manufactured or fabricated equipment, components, or systems have satisfactorily passed all required inspection, examination and testing.

xiii) Nonconforming Parts, Materials, and Components: The QA System shall assure that nonconforming parts, materials and components are prevented from being incorporated/introduced in all manufacturing tasks and/or into the final product; are properly identified and segregated from conforming items while awaiting disposition; and are reported for immediate disposition of nonconformance.

xiv) Corrective Action: The QA System shall include corrective action processes to assure that conditions which are adverse to quality are promptly identified and corrected; to determine the cause of nonconformance and take corrective measures to prevent recurrence; to document and report to appropriate management all records and procedures used in correcting the condition of nonconformance; and to assure that corrective actions resulting from the audits are properly corrected and immediately responded to.

xv) Quality Assurance Records: The QA System shall include procedures to assure that all QA related documents and supporting evidence are properly accumulated, maintained, organized and protected; and that all documents are properly identified, controlled, and stored in a well-defined location. These records shall be available for review. Records are considered one of the principle forms of objective evidence that applicable quality system elements have been implemented.

xvi) Audits: The QA System shall include audits to verify implementation and compliance with all aspects of the QA System and to determine the effectiveness of the system; assure that audits are performed in accordance with a written checklist by qualified personnel; assure that all audit results are documented and reviewed by management responsible for the area being audited; and assure that follow-up actions and actual verification, including re-audit of deficient areas are performed. The Contractor's Audit program shall include auditing of the subcontractors, sub-consultants and supplier organizations to verify that the quality systems are compliant with contract quality requirements and the organizations' quality plan.

xvii) Servicing: The QA System shall include documented procedures for performing, verifying, and reporting that the servicing meets the specified requirements.

xviii) Software Quality Assurance and Documentation: The Contractor shall submit for approval, a Software Quality Assurance Plan (in accordance with ANSI/IEEE Standard

730-2002 or ISO 9001 requirements). For reference, this Standard has the following minimum software documentation requirements:

Software Requirements Specification
Software Design Description
Software Verification and Validation Plan
Software Verification and Validation Report
User Documentation

xix) The Software Design Description (SDD) shall be in accordance with ANSI/IEEE Standard 1016-1998 or ISO 9001 requirements. The final Software Design Description shall include details required by ATA Specification No. 102, through all levels to Level 6 or ISO 9001 requirements. The levels defined in ATA No. 102 are summarized below only for information:

Level 1. Computer description and operation
Level 2. Software architecture, basic program and functions.
Level 3. Detailed flow information.
Level 4. Annotated compiler/assembly listing
Level 5. Detailed memory map and listing
Level 6. Input/output port map

xx) At its option, MDC will participate in both the Software Requirements and the Preliminary Design Review, as defined by the ANSI/IEEE Standard 730-2002 or in accordance with Cubic's ISO 9001 procedures. Following these reviews, the Contractor shall submit, for approval, the Software Requirements Specification and the Software Design Description. All subsequent changes to these documents shall also be submitted and approved prior to implementation.

ARTICLE 44. ASSIGNMENT OF MONIES OWED

Monies owed, or which become owed, to the Contractor under the Agreement may only be assigned to a bank, trust company, or other financing institution, including any federal lending agency, and may thereafter be further assigned and reassigned to any such institution. Written notice of such an assignment or reassignment must be provided, however, to the County by certified mail within ten (10) days of the assignment or reassignment. Any such assignment or reassignment shall cover all amounts payable under the Contract Documents but not already paid, and shall not be made to more than one party, except that any such assignment or reassignment may be made to one party as agent or trustee for two or more parties participating in such financing.

ARTICLE 45. FACILITIES FOR CONTRACTOR

DTPW shall provide office space suitable to, and for use by, the Contractor and their representatives (not to exceed two persons working out of the office space at any time) for overseeing the Agreement, performing inspections, witnessing tests, maintaining records, maintaining quality assurance and reviewing design and configuration changes. Such office space shall be adequate for the intended purposes and shall be furnished, maintained, cleaned and security protected as necessary by Miami-Dade County. Access to the Work and office space shall be available on a regular work schedule basis, if required for the Work.

ARTICLE 46. OPERATIONS AND STORAGE AREAS

To the extent that any portion of the Work is performed on the County's property, all operations of the Contractor, including storage of materials and equipment, shall be confined to areas authorized and approved by the County.

Limited parking facilities for the Contractor's and its Subcontractor's and Supplier's personnel will be provided by the County, on its property, in an area(s) to be determined by the County. Additional parking facilities for the Contractor's and any Subcontractor's or Supplier's personnel shall be the Contractor's responsibility.

ARTICLE 47. PATENT AND COPYRIGHT INDEMNIFICATION

a) The Contractor shall not infringe on any copyrights, trademarks, service marks, trade secrets, patent rights, other intellectual property rights or any other third party proprietary rights in the performance of the Work.

b) The Contractor warrants that all Deliverables furnished hereunder, including but not limited to: equipment, programs, documentation, software, analyses, applications, methods, ways, processes, and the like, do not infringe upon or violate any copyrights, trademarks, service marks, trade secrets, patent rights, other intellectual property rights or any other third party proprietary rights.

c) The Contractor shall be liable and responsible for any and all claims made against the County for infringement of patents, copyrights, service marks, trade secrets or any other third party proprietary rights, by the use or supplying of any programs, documentation, software, analyses, applications, methods, ways, processes, and the like, in the course of performance or completion of, or in any way connected with, the Work, or the County's continued use of the Deliverables furnished hereunder. Accordingly, the Contractor at its own expense, including the payment of attorney's fees, shall indemnify, and hold harmless the County and defend any action brought against the County with respect to any claim, demand, cause of action, debt, or liability; provided that the County gives the Contractor timely written notice of any claim of infringement, grants the Contractor sole control of the defense and any settlement thereof, and reasonably cooperates with the Contractor, at the Contractor's expense. Notwithstanding the foregoing, the Contractor shall have no liability to the County if the claim of infringement is based upon or arises out of (1) alterations of the Work, patented materials, equipment, devices or processes by the County; (2) the failure of the County to use modifications provided by the Contractor for avoiding infringement; or, (3) use of the Work, patented materials, equipment, devices or processes in combination with hardware or software not approved by the Contractor if the infringement claim could have been avoided if such unapproved combination had not been used.(Same language as original contract)

d) In the event any Deliverable or anything provided to the County hereunder, or portion thereof is held to constitute an infringement and its use is or may be enjoined, the Contractor shall have the obligation to, at the County's option to (i) modify, or require that the applicable subcontractor or supplier modify, the alleged infringing item(s) at its own expense, without impairing in any respect the functionality or performance of the item(s), or (ii) procure for the County, at the Contractor's expense, the rights provided under this Agreement to use the item(s).

e) The Contractor shall be solely responsible for determining and informing the County whether a prospective supplier or subcontractor is a party to any litigation involving patent or copyright infringement, service mark, trademark, violation, or proprietary rights

claims or is subject to any injunction which may prohibit it from providing any Deliverable hereunder. The Contractor shall enter into agreements with all suppliers and subcontractors at the Contractor's own risk. The County may reject any Deliverable that it believes to be the subject of any such litigation or injunction, or if, in the County's judgment, use thereof would delay the Work or be unlawful.

ARTICLE 48. CONFIDENTIALITY

a) All Developed Works and other materials, data, transactions of all forms, financial information, documentation, inventions, designs and methods obtained from the County in connection with the Services performed under this Agreement, made or developed by the Contractor or its subcontractors in the course of the performance of such Services, or the results of such Services, or which the County holds the proprietary rights, constitute Confidential Information and may not, without the prior written consent of the County, be used by the Contractor or its employees, agents, subcontractors or suppliers for any purpose other than for the benefit of the County, unless required by law. In addition to the foregoing, all County employee information and County financial information shall be considered Confidential Information and shall be subject to all the requirements stated herein. Neither the Contractor nor its employees, agents, subcontractors or suppliers may sell, transfer, publish, disclose, display, license or otherwise make available to others any part of such Confidential Information without the prior written consent of the County. Additionally, the Contractor expressly agrees to be bound by and to defend, indemnify and hold harmless the County, and their officers and employees from the breach of any federal, state or local law in regard to the privacy of individuals.

b) The Contractor shall advise each of its employees, agents, subcontractors and suppliers who may be exposed to such Confidential Information of their obligation to keep such information confidential and shall promptly advise the County in writing if it learns of any unauthorized use or disclosure of the Confidential Information by any of its employees or agents, or subcontractor's or supplier's employees, present or former. In addition, the Contractor agrees to cooperate fully and provide any assistance necessary to ensure the confidentiality of the Confidential Information.

c) It is understood and agreed that in the event of a breach of this Article damages may not be an adequate remedy and the County shall be entitled to injunctive relief to restrain any such breach or threatened breach. Unless otherwise requested by the County, upon the completion of the Services performed hereunder, the Contractor shall immediately turn over to the County all such Confidential Information existing in tangible form, and no copies thereof shall be retained by the Contractor or its employees, agents, subcontractors or suppliers without the prior written consent of the County. A certificate evidencing compliance with this provision and signed by an officer of the Contractor shall accompany such materials.

ARTICLE 49. PROPRIETARY INFORMATION

As a political subdivision of the State of Florida, Miami-Dade County is subject to the stipulations of Florida's Public Records Law.

The Contractor acknowledges that all computer software in the County's possession may constitute or contain information or materials which the County has agreed to protect as proprietary information from disclosure or unauthorized use and may also constitute or contain

information or materials which the County has developed at its own expense, the disclosure of which could harm the County's proprietary interest therein.

During the term of the contract, the Contractor will not use directly or indirectly for itself or for others, or publish or disclose to any third party, or remove from the County's property, any computer programs, data compilations, or other software which the County has developed, has used or is using, is holding for use, or which are otherwise in the possession of the County (hereinafter "Computer Software"). All third-party license agreements must also be honored by the contractors and their employees, except as authorized by the County and, if the Computer Software has been leased or purchased by the County, all hired party license agreements must also be honored by the contractors' employees with the approval of the lessor or Contractors thereof. This includes mainframe, minis, telecommunications, personal computers and any and all information technology software.

The Contractor will report to the County any information discovered or which is disclosed to the Contractor which may relate to the improper use, publication, disclosure or removal from the County's property of any information technology software and hardware and will take such steps as are within the Contractor's authority to prevent improper use, disclosure or removal.

ARTICLE 50. PROPRIETARY RIGHTS

a) The Contractor hereby acknowledges and agrees that the County retains all rights, title and interests in and to all materials, data, documentation and copies thereof furnished by the County to the Contractor hereunder, even if unfinished or in process, as a result of the Services the Contractor performs in connection with this Agreement, including all copyright and other proprietary rights therein, which the Contractor as well as its employees, agents, subcontractors and suppliers may use only in connection with the performance of Services under this Agreement. The Contractor shall not, without the prior written consent of the County, use such documentation on any other project in which the Contractor or its employees, agents, subcontractors or suppliers are or may become engaged. Submission or distribution by the Contractor to meet official regulatory requirements or for other purposes in connection with the performance of Services under this Agreement shall not be construed as publication in derogation of the County's copyrights or other proprietary rights.

a) b) Except as otherwise provided elsewhere herein, the Contractor and its subcontractors and suppliers hereunder shall retain all proprietary rights in and to all Licensed Software provided hereunder. Notwithstanding the foregoing, the Contractor hereby grants, and shall require that its subcontractors and suppliers grant, if the County so desires, a perpetual, irrevocable and unrestricted right and license to use, duplicate, disclose and/or permit any other person(s) or entity(ies) to use all such Licensed Software and the associated specifications, technical data and other Documentation for the operations of the County or entities controlling, controlled by, under common control with, or affiliated with the County, or organizations which may hereafter be formed by or become affiliated with the County. Such license specifically includes, but is not limited to, the right of the County to use and/or disclose, in whole or in part, the technical documentation and Licensed Software, including source code provided hereunder, to any person or entity outside the County for such person's or entity's use in furnishing any and/or all of the Deliverables provided hereunder exclusively for the County or entities controlling, controlled by, under common control with, or affiliated with the County, or organizations which may hereafter be formed by or become affiliated with the

County. No such License Software, specifications, data, documentation or related information shall be deemed to have been given in confidence and any statement or legend to the contrary shall be void and of no effect.

ARTICLE 51. WARRANTIES, REPRESENTATIONS AND COVENANTS

a) The Contractor warrants, represents and covenants as follows:

(1) Contractor shall utilize its best efforts in performing the Work;

(2) The Automated Fare Collection Modernization, the Work and all Cloud Services furnished pursuant to the Contract Documents are, shall be, and shall perform, in accordance and conformance with the requirements of the Contract Documents;

b) All Automated Fare Collection Modernization licenses and any Fare Collection System functions, including any required customization, do and shall meet the material requirements of the Contract Documents, are and shall be consistent with any additional written representations or warranties of the Contractor;

c) The Automated Fare Collection Modernization, all Cloud Services furnished pursuant to the Contract Documents and all other portions of the Work are, and shall be, free of the rightful claim of any person or entity for patent or trademark infringement;

d) The Contractor shall ensure, consistent with applicable industry standards, that the Automated Fare Collection Modernization including, without limitation, any and all customizations thereto, shall be documented in a manner consistent with Contract Documents and the best standards of the industry;

e) Unless otherwise expressly stated in the Contract Documents, "defective or inferior" shall mean any condition, malfunction, or failure, whether patent or latent, whereby an Automated Fare Collection Modernization item, inclusive of system, subsystem, software of the Work shall, require repair, replacement, or other than routine maintenance; cause the Automated Fare Collection Modernization or other portion of the Work to cease operating or operate in a degraded mode; inflict damage or harm on any portion of the Automated Fare Collection Modernization or other portion of the Work; or otherwise fail to conform to the requirements of the Contract Documents, excluding any such condition, malfunction or failure caused by County's abuse or neglect, including but not limited to improper or insufficient maintenance or use in other than specified conditions, or caused by damage resulting from accident, vandalism, improper storage, improper handling, improper repair, improper testing, reconfiguration of DTPW, or Acts of God.

f) Within fifteen (15) days after receipt of written notification from the County, the Contractor shall either agree that the defective or inferior Work, Automated Fare Collection Modernization, its system, subsystem, software is covered by guaranty, or reserve judgment, until the Work, the Automated Fare Collection Modernization, its system, subsystem, software is inspected and tested by the Contractor.

g) If the Contractor reserves judgment, the Contractor shall perform any inspections and tests necessary to verify the existence of the defective or inferior Work, Automated Fare Collection Modernization , its system, subsystem, software, or other non–compliance with the applicable guaranty, within seven (7) days of receipt of the County's written

notice.

h) Except as otherwise set forth in the Contract Documents, the guarantees, warrantees and representations set forth in, referenced in, included in, or required by, the Contract Documents are in lieu of all other warranties, express or implied, whether statutory or common law, including, without limitation, any warranty or merchantability.

As to warranties, the rights and remedies of the County are exclusive. The only warranties made by the Contractor are those expressly provided herein. THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES AND NO OTHER WARRANTIES OF ANY KIND SHALL APPLY, WHETHER EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF NON-INFRINGEMENT, MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE REMEDIES SET FORTH IN THIS WARRANTY ARE THE SOLE AND EXCLUSIVE REMEDIES OF THE COUNTY.

ARTICLE 52. CONTRACTOR DOCUMENT CONTROL REQUIREMENTS

a) The Contractor shall establish the necessary procedures to assure effective compliance with the document control requirements of the Contract Documents or otherwise specified by the County for the preparation, submission and retention of data, transmittal letters, meeting minutes, change orders, reports, schedules and other documents (hereinafter the "Contractors Document Control Program").

b) The Contractor's Document Control Program shall be sufficient to allow for County's review and oversight in the following areas:

(1) Technical Documents – Infrastructure and data flow documentation.

(2) Design Reviews – to assure design concurrence between the County and the Contractor, regularly scheduled design reviews shall be conducted, at a location to be determined by the County, for the purpose of monitoring progress on a real–time basis. Such concurrence shall not relieve the Contractor from responsibility to comply with all the requirements of the Contract Documents. The Contractor shall submit a design review schedule in accordance with the Contract Documents. The design review schedule shall include the decision–issue subjects of each design review.

ARTICLE 53. CONTRACT DOCUMENTS, DATA AND DRAWINGS

a) The County will furnish the Contractor, for its use, one original copy of the executed Contract.

b) The Contractor shall furnish contract drawings in accordance with the following:

(1) The term "drawings" shall mean data flow diagrams.

(2) The drawings, data or other submittals shall be complete and detailed. The drawings, data or other submittals shall be submitted using standard transmittal forms in accordance with instructions furnished by the County.

(3) All drawings, data and other submittals, including letters and manuals, shall be provided in English

(4) The drawings, data and other submittals shall be coordinated so that any information required by others is included on the drawings, data and other submittals.

(5) Changes on the drawings, data and other submittals made by the Contractor at the direction of the County shall be clearly identified by appropriate revision marks at the location on the drawings, data and other submittals where changes were made and by appropriate notation on the drawings, data and other submittals.

(6) Data shall be on 8½ inch by 11 inch sheets and suitable for xerographic reproduction. Fold–out sheets 11 inches by 17 inches, with reinforced binder tabs, may be used for figures and sketches. The pages shall be bound in a fashion which is readily disassembled and reassembled. In addition to the printed copies required, printed material shall also be furnished in digital format using native format.

ARTICLE 54. PERSONNEL FOR THE WORK

a) Contractor shall secure, at its own expense, all personnel required to perform the Work. Such personnel shall not be employees of DTPW, County of Miami-Dade.

b) All personnel engaged in performing the Work shall be fully qualified to perform such Work.

c) In the event the Contractor wishes to substitute key personnel, the Contractor must notify the County in writing and request written approval for the substitution at least ten (10) business days prior to effecting such substitution.

d) The Contractor shall remove from the performance of the Work any of its or its Subcontractor's or Supplier's personnel assigned to the performance of the Work if the County reasonably considers such removal necessary in its best interests and requests such removal in writing.

ARTICLE 55. INSPECTION

a) The County shall at all times, have the right to inspect, and shall have access to, the Work and any portion thereof and the Contractor shall furnish every reasonable facility for ascertaining that the Work is performed in accordance with the requirements of the Contract Documents. The Work and any portion thereof shall be subject to the County's or the County's on–site and off–site inspection.

b) The Government shall also have access to, and shall have the right to inspect, the Work. State and local officials shall have the right to inspect those portions of the Work that are subject to their jurisdiction. The Contractor shall cooperate with these federal, state and local representatives in the same manner as any County representative.

c) Inspection or lack of inspection, approval or acceptance of any portion of the Work shall not relieve or release the Contractor from its obligations to adhere to, and fulfill the

requirements of, the Contract Documents, including, but not limited to, the Contractor's warranty, reliability and guaranty obligations. Work not meeting the requirements of the Contract Documents shall be made acceptable to the County. Any non-conforming portion of the Work may be rejected by the County, notwithstanding that such portion of the Work may have been previously inspected, approved, or accepted or that payment therefore may have been included in a prior pay estimate.

d) Re-inspection of any portion of the Work that is reasonably necessary may be ordered by the County at any time before issuance of the Letter of Acceptance. If such portion of the Work is found to be in accordance with the Contract Documents, the County will pay all costs incurred to perform this inspection. If such portion of the Work is not in accordance with the Contract Documents, Contractor shall pay all costs incurred to perform this inspection.

e) The Contractor shall provide for the inspection of all incoming systems, subsystems, components, parts, equipment and other materials to insure their correctness and condition. The County shall be given notice of, and shall have the right to observe, such inspections. Items being inspected shall be identified with corresponding drawing, specification, or other pertinent technical documents. All material certifications and test reports used as the basis for acceptance shall be retained by the Contractor.

f) The Contractor shall assure that all manufacturing processes, fabrication, rehabilitation and other production operations are accomplished under an effective production control system. In-process inspection shall be used to monitor the production control system. The County shall be given notice of, and shall have the right to observe, such inspections. The Contractor shall maintain a system for identifying the progressive inspection status of materials, components, subassemblies and assemblies, so that such status is known throughout the manufacturing, installation, rehabilitation and testing phases. The Contractor's inspection program shall also provide for surveillance to ensure proper handling, storage, preserving, packaging and marking of items during the production process.

g) The Contractor's inspection program shall provide for proper inspection prior to shipment of Fare System Modernization Program elements and other items deliverable to the County in accordance with the Contract Documents. The County shall be given notice of, and shall have the right to observe, the inspection of each Fare System Modernization Program and other items.

h) The Contractor shall monitor Subcontractor's inspection programs to ensure that services and materials being supplied conform to Contract Documents.

i) The Contractor shall provide and maintain an inspection program acceptable to the County as specified in the Scope of Work/Technical Specifications herein. Records of all inspection work by the Contractor shall be kept complete and available to the County and the County during the performance of the Agreement, and for a period of four (4) years after the issuance of the Letter of Acceptance. Upon the issuance of the Letter of Acceptance for the Fare System Modernization Program, all sign-off, inspection and test records, changes, reports, orders, modifications and quality assurance data for the Fare System Modernization Program shall be provided to the County.

ARTICLE 56. IDENTIFICATION OF EMPLOYEES

a) Photo identification badges, which shall be issued by the Contractor and which shall be subject to the County's approval, shall be worn at all times by all Contractor, Subcontractor, and Supplier personnel when on the County's property. The badges shall show the employer's name and employee's name and identification number. Also, all other visitors, when on the County's property, must wear identification badges issued by the Contractor and approved by the County. Such identification must be displayed in a prominent manner on each person while on the County's property. Access to the County's property will be granted only to properly identified representatives of the Contractor, Subcontractors, and Suppliers.

b) At a location and in a manner to be determined by the County, all employees and agents of the Contractor and its Subcontractors and Suppliers shall sign–in when arriving on, and shall sign–out upon departing, the County's property.

ARTICLE 57. VENDOR REGISTRATION/CONFLICT OF INTEREST

a) Vendor Registration
The Contractor shall be a registered vendor with the County – Internal Services Department, Procurement Management Division, for the duration of this Agreement. In becoming a Registered Vendor with Miami-Dade County, the Contractor confirms its knowledge of and commitment to comply with the following:

1. ***Miami-Dade County Ownership Disclosure Affidavit***
(Section 2-8.1 of the County Code)

2. ***Miami-Dade County Employment Disclosure Affidavit***
(Section 2.8-1(d)(2) of the County Code)

3. ***Miami-Dade Employment Drug-free Workplace Certification***
(Section 2-8.1.2(b) of the County Code)

4. ***Miami-Dade Disability and Nondiscrimination Affidavit***
(Section 2-8.1.5 of the County Code)

5. ***Miami-Dade County Debarment Disclosure Affidavit***
(Section 10.38 of the County Code)

6. ***Miami-Dade County Vendor Obligation to County Affidavit***
(Section 2-8.1 of the County Code)

7. ***Miami-Dade County Code of Business Ethics Affidavit***
(Section 2-8.1(i) and 2-11(b)(1) of the County Code through (6) and (9) of the County Code and Section 2-11.1(c) of the County Code)

8. ***Miami-Dade County Family Leave Affidavit***
(Article V of Chapter 11 of the County Code)

9. ***Miami-Dade County Living Wage Affidavit***
(Section 2-8.9 of the County Code)

10. ***Miami-Dade County Domestic Leave and Reporting Affidavit***
(Article 8, Section 11A-60 11A-67 of the County Code)

11. ***Subcontracting Practices***
(Ordinance 97-35)

12. **Miami-Dade County E-Verify Affidavit**
(Executive Order 11-116)

13. ***Subcontractor /Supplier Listing***
(Section 2-8.8 of the County Code)

14. ***Environmentally Acceptable Packaging***
(Resolution R-738-92)

15. ***W-9 and 8109 Forms***
(as required by the Internal Revenue Service)

16. ***FEIN Number or Social Security Number***
In order to establish a file, the Contractor's Federal Employer Identification Number (FEIN) must be provided. If no FEIN exists, the Social Security Number of the owner or individual must be provided. This number becomes Contractor's "County Vendor Number". To comply with Section 119.071(5) of the Florida Statutes relating to the collection of an individual's Social Security Number, be aware that the County requests the Social Security Number for the following purposes:
   - Identification of individual account records
   - To make payments to individual/Contractor for goods and services provided to Miami-Dade County
   - Tax reporting purposes
   - To provide a unique identifier in the vendor database that may be used for searching and sorting departmental records

17. ***Office of the Inspector General***
(Section 2-1076 of the County Code)

18. ***Small Business Enterprises***
The County endeavors to obtain the participation of all small business enterprises pursuant to Sections 2-8.2,

2-8.2.3 and 2-8.2.4 of the County Code and Title 49 of the Code of Federal Regulations.	By acceptance of any contract, the Contractor agrees to comply with all antitrust laws of the United States and the State of Florida.

19. Antitrust Laws

b) Conflict of Interest/Code of Ethics
Section 2-11.1(d) of Miami-Dade County Code requires that any County employee or any member of the employee's immediate family who has a controlling financial interest, direct or indirect, with Miami-Dade County or any person or agency acting for Miami-Dade County, competing or applying for a contract, must first request a conflict of interest opinion from the County's Ethics Commission prior to their or their immediate family member's entering into any contract or transacting any business through a firm, corporation, partnership or business entity in which the employee or any member of the employee's immediate family has a controlling financial interest, direct or indirect, with Miami-Dade County or any person or agency acting for Miami-Dade County. Any such contract or business engagement entered in violation of this subsection, as amended, shall be rendered voidable. All autonomous personnel, quasi-judicial personnel, advisory personnel, and employees wishing to do business with the County are hereby advised they must comply with the applicable provisions of Section 2-11.1 of the Miami-Dade County Code relating to Conflict of Interest and Code of Ethics. In accordance with 2-11.1 (y), the Miami Dade County Commission on Ethics and Public Trust (Ethics Commission) shall be empowered to review, interpret, render advisory opinions and letters of instruction and enforce the Conflict of Interest and Code of Ethics Ordinance.

ARTICLE 58. INSPECTOR GENERAL REVIEWS

Independent Private Sector Inspector General Reviews

Pursuant to Miami-Dade County Administrative Order 3-20, the County has the right to retain the services of an Independent Private Sector Inspector General (hereinafter "IPSIG"), whenever the County deems it appropriate to do so. Upon written notice from the County, the Contractor shall make available to the IPSIG retained by the County, all requested records and documentation pertaining to this Agreement for inspection and reproduction. The County shall be responsible for the payment of these IPSIG services, and under no circumstance shall the Contractor's prices and any changes thereto approved by the County, be inclusive of any charges relating to these IPSIG services. The terms of this provision apply to the Contractor, its officers, agents, employees, subcontractors and assignees. Nothing contained in this provision shall impair any independent right of the County to conduct an audit or investigate the operations, activities and performance of the Contractor in connection with this Agreement. The terms of this Article shall not impose any liability on the County by the Contractor or any third party.

Miami-Dade County Inspector General Review
According to Section 2-1076 of the Code of Miami-Dade County, Miami-Dade County has established the Office of the Inspector General which may, on a random basis, perform audits on all County contracts, throughout the duration of said contracts, except as otherwise noted below. The cost of the audit for this Contract shall be one quarter (1/4) of one (1) percent of the total contract amount which cost shall be included in the total contract amount. The audit cost will be deducted by the County from progress payments to the Contractor. The audit cost shall also be included in all change orders and all contract renewals and extensions.

Exception: The above application of one quarter (1/4) of one percent fee assessment shall not apply to the following contracts: (a) IPSIG contracts; (b) contracts for legal services; (c) contracts for financial advisory services; (d) auditing contracts; (e) facility rentals and lease

agreements; (f) concessions and other rental agreements; (g) insurance contracts; (h) revenue-generating contracts; (I) contracts where an IPSIG is assigned at the time the contract is approved by the Commission; (j) professional service agreements under $1,000; (k) management agreements; (l) small purchase orders as defined in Miami-Dade County Administrative Order 3-38; (m) federal, state and local government-funded grants; and (n) interlocal agreements. ***Notwithstanding the foregoing, the Miami-Dade County Board of County Commissioners may authorize the inclusion of the fee assessment of one quarter (1/4) of one percent in any exempted contract at the time of award.***

Nothing contained above shall in any way limit the powers of the Inspector General to perform audits on all County contracts including, but not limited to, those contracts specifically exempted above. The Miami-Dade County Inspector General is authorized and empowered to review past, present and proposed County and Public Health Trust contracts, transactions, accounts, records and programs. In addition, the Inspector General has the power to subpoena witnesses, administer oaths, require the production of records and monitor existing projects and programs. Monitoring of an existing project or program may include a report concerning whether the project is on time, within budget and in conformance with plans, specifications and applicable law. The Inspector General is empowered to analyze the necessity of and reasonableness of proposed change orders to the Contract. The Inspector General is empowered to retain the services of IPSIG to audit, investigate, monitor, oversee, inspect and review operations, activities, performance and procurement process, including but not limited to project design, specifications, proposal submittals, activities of the Contractor, its officers, agents and employees, lobbyists, County staff and elected officials to ensure compliance with contract specifications and to detect fraud and corruption.

Upon written notice to the Contractor from the Inspector General or IPSIG retained by the Inspector General, the Contractor shall make all requested records and documents available to the Inspector General or IPSIG for inspection and copying. The Inspector General and IPSIG shall have the right to inspect and copy all documents and records in the Contractor's possession, custody or control which, in the Inspector General's or IPSIG's sole judgment, pertain to performance of the contract, including, but not limited to original estimate files, change order estimate files, worksheets, proposals and agreements form and which successful and unsuccessful subcontractors and suppliers, all project-related correspondence, memoranda, instructions, financial documents, construction documents, proposal and contract documents, back-charge documents, all documents and records which involve cash, trade or volume discounts, insurance proceeds, rebates, or dividends received, payroll and personnel records, and supporting documentation for the aforesaid documents and records.

ARTICLE 59. LOCAL, STATE, AND FEDERAL COMPLIANCE REQUIREMENTS

Contractor agrees to comply, subject to applicable professional standards, with the provisions of any and all applicable Federal, State and the County orders, statutes, ordinances, rules and regulations which may pertain to the Services required under this Agreement, including, but not limited to:

a) Equal Employment Opportunity (EEO), in compliance with Executive Order 11246 as amended and applicable to this Contract.

b) Miami-Dade County Florida, Department of Small Business Development Participation Provisions, as applicable to this Contract.

c) Environmental Protection Agency (EPA), as applicable to this Contract.

d) "Conflicts of Interest" Section 2-11 of the County Code, and Ordinance 01-199.

e) Miami-Dade County Code Section 10-38 "Debarment".

f) Miami-Dade County Ordinance 99-5, codified at 11A-60 et. seq. of Miami-Dade Code pertaining to complying with the County's Domestic Leave Ordinance.

g) Miami-Dade County Ordinance 99-152, prohibiting the presentation, maintenance, or prosecution of false or fraudulent claims against Miami-Dade County.

The Contractor shall hold all licenses and/or certifications, obtain and pay for all permits and/or inspections, and comply with all laws, ordinances, regulations and building code requirements applicable to the work required herein. Damages, penalties, and/or fines imposed on the County or Contractor for failure to obtain and maintain required licenses, certifications, permits and/or inspections shall be borne by the Contractor. The Project Manager shall verify the certification(s), license(s), permit(s), etc. for the Contractor prior to authorizing work and as needed.

Notwithstanding any other provision of this Agreement, Contractor shall not be required pursuant to this Agreement to take any action or abstain from taking any action if such action or abstention would, in the good faith determination of the Contractor, constitute a violation of any law or regulation to which Contractor is subject, including but not limited to laws and regulations requiring that Contractor conduct its operations in a safe and sound manner.

ARTICLE 60. NONDISCRIMINATION

During the performance of this Contract, Contractor agrees to not discriminate against any employee or applicant for employment because of race, color, religion, ancestry, national origin, sex, pregnancy, age, disability, marital status, familial status, sexual orientation, gender identity or gender expression, status as victim of domestic violence, dating violence or stalking, or veteran status, and on housing related contracts the source of income, and will take affirmative action to ensure that employees and applicants are afforded equal employment opportunities without discrimination. Such action shall be taken with reference to, but not limited to: recruitment, employment, termination, rates of pay or other forms of compensation, and selection for training or retraining, including apprenticeship and on the job training.

By entering into this Contract, the Contractor attests that it is not in violation of the Americans with Disabilities Act of 1990 (and related Acts) or Miami-Dade County Resolution No. R-385-95. If the Contractor or any owner, subsidiary or other firm affiliated with or related to the Contractor is found by the responsible enforcement agency or the County to be in violation of the Act or the Resolution, such violation shall render this Contract void. This Contract shall be void if the Contractor submits a false affidavit pursuant to this Resolution or the Contractor violates the Act or the Resolution during the term of this Contract, even if the Contractor was not in violation at the time it submitted its affidavit.

ARTICLE 61. CONFLICT OF INTEREST

The Contractor represents that:

a) No officer, director, employee, agent, or other consultant of the County or a member of the immediate family or household of the aforesaid has directly or indirectly received or been promised any form of benefit, payment or compensation, whether tangible or intangible, in connection with the award of this Agreement.

b) There are no undisclosed persons or entities interested with the Contractor in this Agreement. This Agreement is entered into by the Contractor without any connection with any other entity or person making a proposal for the same purpose, and without collusion, fraud or conflict of interest. No elected or appointed officer or official, director, employee, agent or other consultant of the County, or of the State of Florida (including elected and appointed members of the legislative and executive branches of government), or a member of the immediate family or household of any of the aforesaid:

i) is interested on behalf of or through the Contractor directly or indirectly in any manner whatsoever in the execution or the performance of this Agreement, or in the services, supplies or work, to which this Agreement relates or in any portion of the revenues; or

ii) is an employee, agent, advisor, or consultant to the Contractor or to the best of the Contractor's knowledge any subcontractor or supplier to the Contractor.

c) Neither the Contractor nor any officer, director, employee, agency, parent, subsidiary, or affiliate of the Contractor shall have an interest which is in conflict with the Contractor's faithful performance of its obligation under this Agreement; provided that the County, in its sole discretion, may consent in writing to such a relationship, provided the Contractor provides the County with a written notice, in advance, which identifies all the individuals and entities involved and sets forth in detail the nature of the relationship and why it is in the County's best interest to consent to such relationship.

d) The provisions of this Article are supplemental to, not in lieu of, all applicable laws with respect to conflict of interest. In the event there is a difference between the standards applicable under this Agreement and those provided by statute, the stricter standard shall apply.

e) In the event Contractor has no prior knowledge of a conflict of interest as set forth above and acquires information which may indicate that there may be an actual or apparent violation of any of the above, Contractor shall promptly bring such information to the attention of the County's Project Manager. Contractor shall thereafter cooperate with the County's review and investigation of such information, and comply with the instructions Contractor receives from the Project Manager in regard to remedying the situation.

ARTICLE 62. PRESS RELEASE OR OTHER PUBLIC COMMUNICATION

Under no circumstances shall the Contractor without the express written consent of the County:

a) Issue or permit to be issued any press release, advertisement or literature of any kind which refers to the County, or the Work being performed hereunder, unless the Contractor first obtains the written approval of the County. Such approval may be withheld if for any reason the County believes that the publication of such information would be harmful to the public interest or is in any way undesirable; and

b) Communicate in any way with any contractor, department, board, agency, commission or other organization or any person whether governmental or private in connection with the Services to be performed hereunder except upon prior written approval and instruction of the County; and

c) Except as may be required by law, the Contractor and its employees, agents, subcontractors and suppliers will not represent, directly or indirectly, that any product or service provided by the Contractor or such parties has been approved or endorsed by

the County.

ARTICLE 63. BANKRUPTCY

The County reserves the right to terminate this contract, if, during the term of any contract the Contractor has with the County, the Contractor becomes involved as a debtor in a bankruptcy proceeding, or becomes involved in a reorganization, dissolution, or liquidation proceeding, or if a trustee or receiver is appointed over all or a substantial portion of the property of the Contractor under federal bankruptcy law or any state insolvency law.

ARTICLE 64. GOVERNING LAW

This Contract, including appendices, and all matters relating to this Contract (whether in contract, statute, tort (such as negligence), or otherwise) shall be governed by, and construed in accordance with, the laws of the State of Florida. Venue shall be Miami-Dade County.

ARTICLE 65. COUNTY USER ACCESS PROGRAM ("UAP")

a) User Access Fee

Pursuant to Section 2-8.10 of the Miami-Dade County Code, this Contract is subject to a user access fee under the County User Access Program ("UAP") in the amount of two percent (2%). All sales resulting from this Contract, or any contract resulting from the solicitation referenced on the first page of this Contract, and the utilization of the County Contract price and the terms and conditions identified herein, are subject to the two percent (2%) UAP. This fee applies to all Contract usage whether by County Departments or by any other governmental, quasi-governmental or not-for-profit entity.

The Contractor providing goods or services under this Contract shall invoice the Contract price and shall accept as payment thereof the Contract price less the 2% UAP as full and complete payment for the goods and/or services specified on the invoice. The County shall retain the 2% UAP for use by the County to help defray the cost of the procurement program. Contractor participation in this invoice reduction portion of the UAP is mandatory.

b) Joint Purchase

Only those entities that have been approved by the County for participation in the County's Joint Purchase and Entity Revenue Sharing Agreement are eligible to utilize or receive County Contract pricing and terms and conditions. The County will provide to approved entities a UAP Participant Validation Number. The Contractor must obtain the participation number from the entity prior to filling any order placed pursuant to this Section. Contractor participation in this joint purchase portion of the UAP, however, is voluntary. The Contractor shall notify the ordering entity, in writing, within three (3) business days of receipt of an order, of a decision to decline the order.

For all ordering entities located outside the geographical boundaries of Miami-Dade County, the Contractor shall be entitled to ship goods on an "FOB Destination, Prepaid and Charged Back" basis. This allowance shall only be made when expressly authorized by a representative of the ordering entity prior to shipping the goods.

The County shall have no liability to the Contractor for the cost of any purchase made by an ordering entity under the UAP and shall not be deemed to be a party thereto. All orders shall be

placed directly by the ordering entity with the Contractor and shall be paid by the ordering entity less the 2% UAP.

c) **Contractor Compliance**

If a Contractor fails to comply with this Article, that Contractor may be considered in default by the County in accordance with Article 24 of this Contract.

ARTICLE 67. PUBLIC RECORDS AND CONTRACTS FOR SERVICES PERFORMED ON BEHALF OF MIAMI-DADE COUNTY

The Contractor shall comply with the Public Records Laws of the State of Florida, including by not limited to, (1) keeping and maintaining all public records that ordinarily and necessarily would be required by the County in order to perform the service; (2) providing the public with access to public records on the same terms and conditions that the County would provide the records and at a cost that does not exceed the cost provided in Chapter 119, F.S., or as otherwise provided by law; (3) ensuring that public records that are exempt or confidential and exempt from public records disclosure requirements are not disclosed except as authorized by law; and (4) meeting all requirements for retaining public records and transferring, at no cost, to the County all public records in possession of the Contractor upon termination of the contract and destroying any duplicate public records that are exempt or confidential and exempt from public records disclosure requirements upon such transfer. In addition, all records stored electronically must be provided to the County in a format that is compatible with the information technology systems of the County. Failure to meet any of these provisions or to comply with Florida's Public Records Laws as applicable shall be a material breach of this Agreement and shall be enforced in accordance with the terms and conditions of the Agreement.

IF THE CONTRACTOR HAS QUESTIONS REGARDING THE APPLICATION OF CHAPTER 119, FLORIDA STATUTES, TO THE CONTRACTOR'S DUTY TO PROVIDE PUBLIC RECORDS RELATING TO THIS CONTRACT, CONTACT THE CUSTODIAN OF PUBLIC RECORDS AT (305) 375-5773, ISD-VSS@MIAMIDADE.GOV, 111 NW 1st STREET, SUITE 1300, MIAMI, FLORIDA 33128

ARTICLE 68. SURVIVAL

The parties acknowledge that any of the obligations in this Agreement will survive the term, termination and cancellation hereof. Accordingly, the respective obligations of the Contractor and the County under this Agreement, which by nature would continue beyond the termination, cancellation or expiration thereof, shall survive termination, cancellation or expiration hereof.

IN WITNESS WHEREOF, the parties have executed this Agreement effective as of the contract date herein above set forth.

Contractor

By: _____

Name: Michael Andranovich

Title: Senior Contracts Manager

Date: July 8, 2016

Attest: _____
Corporate Secretary/Notary Public

Corporate Seal/Notary Seal

CATHY DINE
Commission # 2068537
Notary Public - California
San Diego County
My Comm. Expires Jun 13, 2018

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

Miami-Dade County

By: _____

Name: Carlos A. Gimenez

Title: Mayor

Date: _____

Attest: _____
Clerk of the Board

Approved as to form
and legal sufficiency

_____
Assistant County Attorney

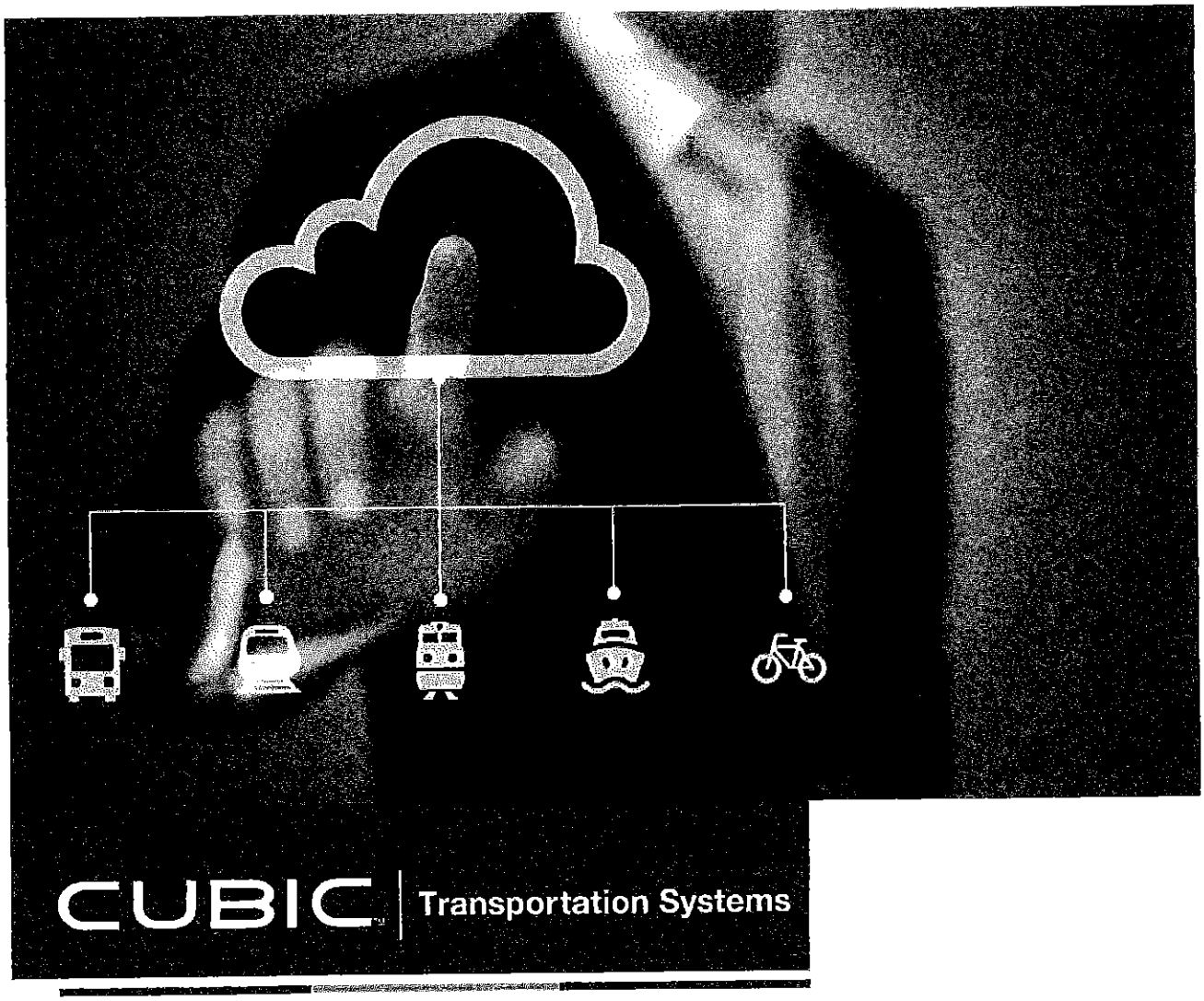

Exhibit A-1: DTPW Cloud Services Agreement

30 June 2016

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Trademarks

Executive Summary

This document details the complete scope of services included within the Cubic® Cloud Platform, a hosted monthly subscription Software as a Service that includes the following:

- **Credit Card Processing:** All credit card processing will be accomplished through the Cubic Payment Application (CPA) using a connector to the selected Merchant Processor, allowing the Subscriber to perform settlement using native reports and functionality.
- **Directed and Threshold Autoload of passes and value:** The new customer web portal, accessed through the new web portal, allows autoloads of passes and value.
- **Hotlist and Unhotlist:** All hotlisting and unhotlisting of fare cards will be managed through the Cubic Cloud NextFare® 7 system using streamlined screens available through supported web browsers.
- **PCI Compliance:** Cubic will provide PCI compliance for all elements of the cloud and will maintain PCI compliance throughout the contract duration for the cloud.

Please see Figure 1 below for an overview of the Cubic Cloud Infrastructure and the Central System modules proposed as part of this project.

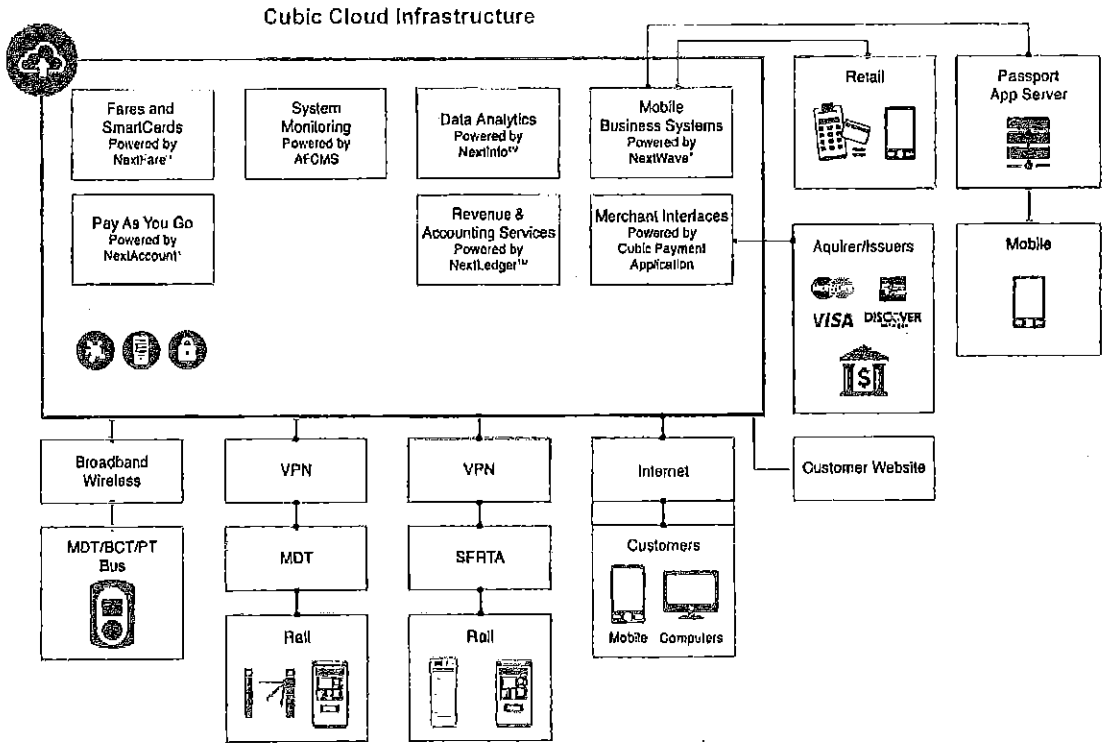


Figure 1. Proposed Cubic Cloud Infrastructure and Central System Modules Overview

SECTION 1.
Definitions and Interpretation

In this document, the following definitions apply:

Agreement Fees means the fees as set forth in this Agreement.

Agreement to mean collectively these terms and conditions, the Schedule (Schedule A), the Pricing (Schedule B), and all associated amendments issued hereto.

Automatic Fare Collection System or AFCS means the system of front end terminals, communications, and back office processing software systems that manage devices, control card issuance, perform transaction processing, and generate/maintain operating data.

Availability means the continued access and up time of the Services and the ability for Subscriber and patrons to make use of its functionality.

Cardholder means the holder of a fare media device capable of holding a valid fare product or credential and presenting it for processing to a fare terminal.

Contract Date to mean the date on which this Agreement is effective as stated above.

Contract Manager to mean the Customer's Internal Service Department (ISD) Procurement Contracting Officer.

Current Version means the Services solution available to provide the services to Subscriber at the date the Agreement is signed.

Customer means Miami-Dade Transit, a department within Miami-Dade County.

Days means Calendar days.

Documentation means (a) the written, printed, electronic or other format materials published or otherwise made available by Cubic that relate to the functional, capabilities of the Cloud Services; (b) documentation pertaining to the content of any Cloud Services solution Updates.

Fare Product means a valid fare instrument that can be loaded to a contactless smart card, the secure element, or the account based processing system. Fare products may include closed loop stored value, single ride tickets, ride books, or period passes.

Patrons or Customers refers to the transit riders using Subscriber's fare instrument for public transportation.

PCI is an acronym for Payment Card Industry.

Problem is the failure and/or defect of Software to perform its intended functions as specified in the Contract and/or for the Software not to be available for normal services.

Project Manager means the Transit contact representative, or designee, for this Agreement.

Permanent Fix is a fully-tested, and accepted by the Transit Project Manager, error correction for a Problem. All reasonable attempts shall be made to provide a permanent fix for a Problem for any severity level within twenty (20) days.

Relief means (i) an immediate solution or a fix for a Problem; or (Ii) a Work-around.

Resolution Time means the time to provide a Relief and/or a Permanent Fix to resolve the Problem.

Reload means the adding value to a card or account as a result of a purchase.

Software means the Cubic proprietary solution computer software components that are utilized to provide the Services to Subscriber as part of this Statement of Work.

Software-as-a-Service or Service means the capability provided by Cubic to the Subscriber to use the proprietary AFCS running in the cloud infrastructure on a subscription basis. The technical and professional activities required for establishing, managing, and maintaining the cloud environments are under the control of and are the responsibilities of Cubic.

Subscriber means the Customer.

Updates means changes to the Software utilized by Cubic to provide the Services to Subscriber, whether for the purpose of correcting an issue in the Software or enhancing the existing functionality of the Software.

Work-around is a procedural or process change, to be provided and implemented by the Contractor, upon approval by the Customer that temporarily circumvents a Problem, or temporarily prevents the reoccurrence of a Problem, or reduces the impact of a Problem until such time as a Permanent Fix is implemented.

SECTION 2.

Scope of Services

2.1 Cloud

Cubic shall provide hosting services for a comprehensive, redundant, secure, highly-available, and geographically-distributed backend system with comprehensive maintenance services that provide the Subscriber with the ability to control, support, and monitor the AFC and equipment. The customer interface with the cloud is via Cubic's service desk. Figure 2 below shows how the service desk uses ServiceNow to control and monitor the cloud-based AFC.

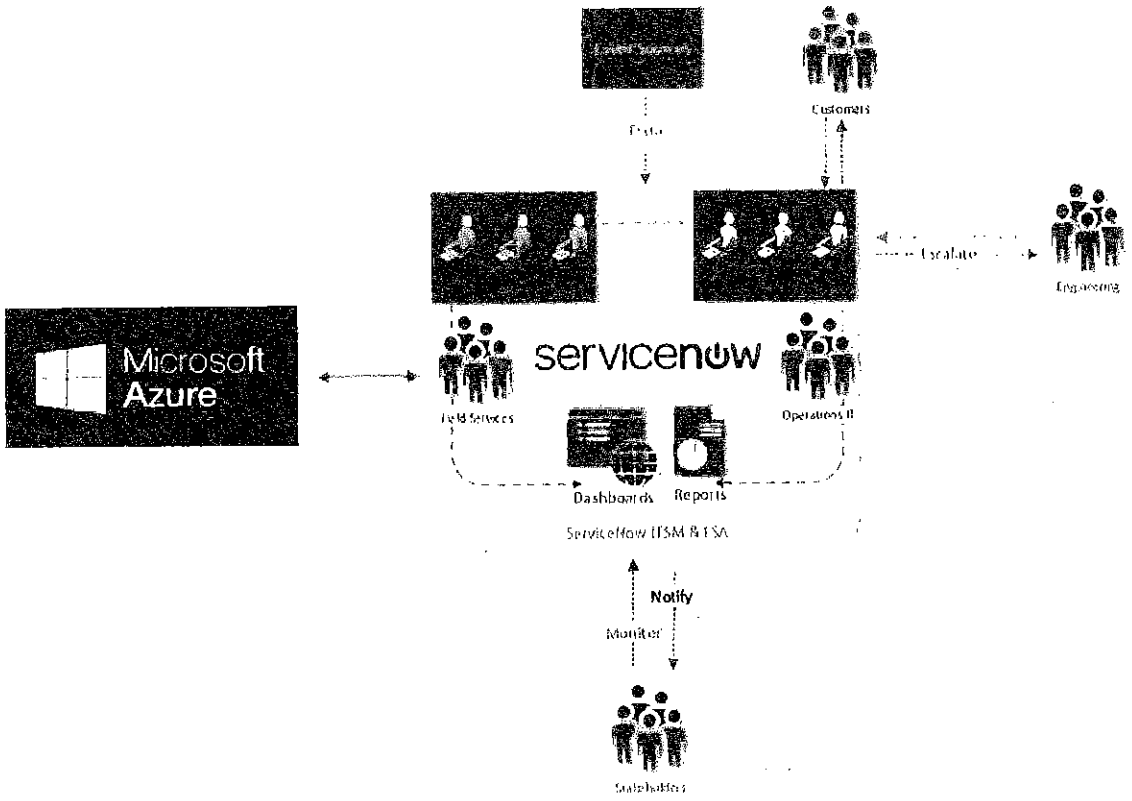


Figure 2. How Service Desk uses ServiceNow to Control and Monitor Cloud-based AFC

2.2 Provision of Service

2.2.1 Services

Cubic will manage the AFC back office as a service. The managed service includes configuration, maintenance and monitoring of the AFC back office. In addition to the infrastructure, Cubic will configure, maintain, and monitor AFC Software.

2.2.2 Protection of Subscriber Data

Cubic will maintain administrative, physical, and technical safeguards for protection of the security, confidentiality, and integrity of Subscriber data, as described in the documentation. Those safeguards will include, but will not be limited to, measures for preventing unauthorized access, use, modification or disclosure of subscriber data.

2.3 System Performance

2.3.1 Key Performance Indicators (KPIs)

This service level agreement sets the target levels of system availability to be at minimum 99.9%. If the cloud service offering fails to be available for ninety-nine and 9-tenths (99.9%) of the time in any calendar month ("SLA"), then the Customer may request a service credit to apply to the next invoice of subscription fees in accordance with the below chart.

Service Credits are calculated as a percentage of the total cloud services fees paid by the customer for the billing cycle in which the outage occurred (measured monthly) in accordance with the schedule below. The maximum amount of service credits is 10% of the cloud service fees.

Table 1. KPIs

Monthly Availability Provided	Service Credit per Minute of Downtime
99.8% - 99.9% availability	0.004% of cloud service fees
99.5% - 99.79% availability	0.008% of cloud service fees
Less than 99.5% availability	0.012% of cloud service fees

"Unavailable" means that the entire Cubic Cloud Service is down except for:

(i) Scheduled Maintenance Downtime

(ii) downtime caused by circumstances beyond Cubic's control, including without limitation modifications of the Cubic Cloud by any person other than Cubic, Custom Applications, a Force Majeure Event, such as, for example, general Internet outages, failure of the Customer's infrastructure or connectivity (including without limitation, direct connectivity and virtual private network (VPN) connectivity to the Subscription Service), computer and telecommunications failures and delays not within Cubic's control, and network intrusions or denial-of-service or other criminal attacks. The Customer must request all service credits or service extensions in writing to Cubic within thirty (30) days of the end of the month in which the SLA was not met.

(iii) Non-production environments

Note: "entire Cubic Cloud Service is down" is defined as the Cloud service is unable to process debit and credit transactions.

2.3.2 Database Performance

The hosted AFC system database will respond to the following user queries within 15 seconds:

- Transaction history for one card for the last 30 days
- Sales summary for a day
- Ridership summary for a day
- Stored value liability summary for the last month

Note the above query performance numbers exclude external network performance factors.

2.4 System Reliability

2.4.1 Disaster Recovery

Cubic will provide a high availability system that offers maximum protection against data loss and system failure. The system is designed to guarantee recovery from the loss of system components during operation. Cubic will submit a custom disaster recovery plan within thirty (30) days after NTP. This plan will describe a data backup and recovery method that ensures minimal data loss in the event of a catastrophic event or system failure impacting one (1) or both hosting sites.

2.4.2 Data Backup and Archive

Cubic will use industry best practices for cloud-based database backups and archiving. This backup includes, but is not limited to, system parameters and settings files, data transferred (transaction and event) from the fare collection equipment, and all operational parameters for all fare collection equipment.

Cubic will provide a comprehensive set of tools and a GUI with full menu interaction and also provide command-line-based administration capability. This application allows for complex policy-based backups to be scheduled for both files and database backups which can be automated or user controlled. The GUI also aides in the recovery process of data.

Backup and restore policies safeguard all data within the Cloud Infrastructure is correctly backed-up to disk and electronically to an offsite data backup facility. In addition, backup processes will also include periodic restoration tests to prove the existing infrastructure.

2.5 System Security

Cubic will certify the back office cloud service as a level-1 service provider. Cubic will maintain information security policies and procedures covering operations and maintenance of the back office cloud environment in accordance with applicable PCI standards, industry best practices, and state and local laws.

The Subscriber is responsible for configuration, operation, performance, and security of all equipment and computing resources used for connection to the Cloud services, including any gateways or other devices you use to connect which are not managed by Cubic. Cubic will not be held liable for a breach or compromise that is initiated by insecure endpoints or infrastructure that is the Subscriber's responsibility.

2.6 Payment Processing

Cubic will deploy the Cubic Payment Application (CPA), interfacing with a bank acquirer which will be responsible for the processing of payments, including credit cards and debit cards for sales through MPOS, mobile application, and Cubic's Ticket Vending Machine (TVM) devices as well as the website.

CPA will interface to the following devices and systems:

- AFC System Devices
- Customer Service Terminals
- Cubic Customer Relationship Management System
- Customer and Institutional Websites

Cubic will provide a payment processing API, including all required security protocols, to allow third-party devices to process payments through the payment application. If the EMV option is executed, all back end

systems accepting bank cards for payment will be certified as compliant with the Europay MasterCard and Visa standards In effect at the time of Cubic system delivery, and capable of being certified to newer versions via software updates. Devices and systems accepting payments will support configurable minimum and maximum payment amounts. The minimum and maximum amounts will be able to be independently set by distribution channel and payment type. The Subscriber is the Merchant of Record and is responsible for all associated costs, including any and all payment processing charges regardless of whether they happen at TVM's, on-line, or via the mobile app.

2.7 System Hosting

The back end system provided by Cubic will be hosted by two (2) existing geographically-separated public cloud hosting sites physically located within the continental United States. Functionally identical back end installations will be provided by Cubic at two (2) sites to provide system redundancy. Each back end installation provided by Cubic will include all customer-facing and operation-critical Systems. Cubic will be responsible for all system installations at the hosted sites, provisioning of the back office system within the applicable cloud-based infrastructure, including all computer, networking, communications, and application installations. Cubic will provide all necessary internal communications and hosting space to support the installations and will be responsible for all back end operations and maintenance. The Subscriber will be responsible for fare policies, user role definition, and custom reports generation. The customer will provide the internet WAN connection and origination VPN at the on premise site. Cubic will provide the application as a service.

2.8 Data Repository

Data received from the various systems will be maintained in the database at the individual event, record, or transaction level. The data repository will store all transaction data generated by the system but will not store customer PII. The data repository provided by Cubic will provide online access to detailed transaction information for no less than seven (7) years following the date of generation. Summary data, to be defined at the time of NTP, will be available for at least ten (10) years. Data captured in the data repository provided by Cubic will include at minimum:

- Fare media and product sale transactions
- Fare use transactions
- Fare inspection transactions from the ATP
- Customer service records from the customer service systems
- Device events and alarms from monitoring systems
- Device audit register data
- Fare media inventory data
- Financial data and accounting entries

2.9 Access to AFC Reports and Status

Subscriber will have access to revenue, ridership, device data reports, and a monitoring system. The data sets generated by these reports and monitoring tools can be viewed either by their source or by having an extract (typically a CSV file) created by either Subscriber staff or by Cubic operations staff.
Regarding Network reporting, Cubic will expose pre-configured and Ad Hoc views of the network status from the network monitoring toolset. The system and network monitoring tools provided by Cubic will provide device up/down status as well as resource reporting where applicable.

The NextFare system provided by Cubic will include full access to the NextFare instance for control and implementation of all Subscriber fare policy and business rules, device configurations, and other NextFare functions. This will allow the Subscriber to maintain operational and configuration control, fraud detection, and management of transit benefits.

Systems administrator access to the NextFare system will be provided by Cubic for user ID and password assignment as needed and determined by Subscriber staff. Operational procedures for access must be defined by the Subscriber no later than ninety (90) calendar days prior to going live.

2.10 System Monitoring and Alerting

All equipment will be connected via the Subscriber Ethernet WAN and routed through the firewall via secured VPN to the Cubic Cloud Infrastructure. These devices may be monitored through Cubic's AFC monitoring system for heartbeat, health, and status. All devices will be thoroughly tested for maintenance of all existing features and functions preserved into the cloud environment. Additionally, all devices will be tested to confirm they continue to meet all performance requirements provided herein. The following agency-specific devices will be monitored:

- Light Rail and Metro Ticket Vending Machines (TVM)
- Metro Gates

2.11 Supported Applications and Services

Applications supported as part of this service are shown in Table 2.

Table 2. Supported Applications

Application	Description of Application
NextFare 7	The NextFare Central System (NCS) consists of a network of computing devices, which manage fare collection processes
CPA	The Cubic Payment Application processes credit/debit card payment requests from fare collection devices, requests from SOAP client applications, and securely stores sensitive credit card data
AFCMS	The Automated Fare Collection Monitoring System (AFCMS) provides device monitoring independent of the NCS with the purpose of providing problem notification for device faults and in and out of revenue service status
Reporting Engine	Creation and production of NCS reports
Event Collector	Offloads event processing from NextFare
Cubic Notification Gateway	Application that sends email notifications
NextFare Integration Service	Integration application that ties and orchestrates applications
Payment Abstraction Layer	Common front end layer for applications for payment processing
Data Warehouse	Data received from the various systems will be maintained in the data warehouse
AppMon	Application allowing Subscriber queries and various diagnostics on the Cubic system to monitor the health of the system and send alerts

Updates will occur as needed to maintain all the deliverables and requirements stated in this document, and may include some or all applications listed in Table 2 above, as well as supporting third-party applications. The Update may also include a software release to the back office to include Subscriber requested bug fixes, enhancements, new features, and could contain other projects fixes/enhancements.

Cubic reserves the right to update services and applications for security and enhanced performance while maintaining the KPIs defined herein.

2.12 Mobile App Sever Service Levels

2.12.1 Performance

Response Times - Response times for Program shall not exceed five (5) seconds per transaction for real time request by Users.

2.12.2 Service Levels

Cubic's subcontractor Passport shall provide hosting for the Passport App Server and shall comply with the following service levels with respect to the production environment: (a) Passport shall provide Users with rolling Passport App Server availability ("Uptime") of 99.9% calculated on a rolling 6 month basis. If the six (6) month uptime percentage drops below 99.9% during any month, we will discount our fees as provided in section 2.12.4 below; (b) The Passport App Server is considered unavailable for any period of time (measured in minutes) ("Downtime") during which the Passport App Server is materially impaired such that Users cannot access the Passport App Servers. Downtime does not include periods of time during which the Passport App Server is unavailable as a result of (a) Maintenance Services, (b) any failure or defect of Customer's or a third party's equipment, software, facilities, third party applications, or internet connectivity (or other causes outside of Passport's firewall), or (c) a Force Majeure Event. "Maintenance Services" means any planned maintenance by Passport.

2.12.3 Service Credits

For any calendar month in which the system Uptime, calculated on rolling six month basis, is less than 99.9%, Passport shall issue a credit to Customer within thirty (30) days after the end of the billing cycle or as agreed between the parties as follows:

Lowest Uptime During Month Credit

- At least 99.5% but less than 99.9% 1% of the Monthly Fee for the applicable calendar month
- At least 97.0% but less than 99.5% 5% of the Monthly Fee for the applicable calendar month
- At least 95.0% but less than 97% 10% of the Monthly Fee for the applicable calendar month
- Less than 95% 25% of the Monthly Fee for the applicable calendar month

2.13 Warranty of Maintenance and Support Services

The Contractor shall provide Maintenance and Support Services in a good and workmanlike manner by properly qualified individuals.

2.14 Service Desk/Technical Support

Cubic will also provide telephone and email access to Subscriber personnel for Cubic's Technical Support Service Desk. The Service Desk will provide 24x7 access to non-automated support for incident reporting,

including requests for defect analysis, trouble-shooting, clarification of applicable Documentation, feature/function explanation, systems monitoring, and various other technical support activities, as required, for service issues.

2.15 Onsite Technical Support

Cubic will staff an Engineer onsite at Miami's offices and will allocate 40% of his time directly to Customer's requests. Should there be an urgent requirement or incident the onsite Engineer will be prioritized to assist Miami as necessary in addition to remote support that will assist the onsite Engineer.

The main function is to configure the central computer system, apply system changes, support field technicians using the fare collection system, manage projects related to the system, and interface with regional partners' project managers to remedy their system problems, issues and concerns. See chart below:

Task	Location
Administer, maintain and troubleshoot the following Automated Fare Collection highly specialized system components	
Nextfare – central computer system	Remote
Cubic Payment Application (CPA) – credit card processing system	Remote
Field equipment monitoring system (excluding actual device monitoring)	Remote
Reporting – provides back-office reconciliation reporting to Finance, Easy Card Center, SFRTA and field technicians	Remote
Responsible for the following system changes	
Software upgrades for all field equipment	Onsite
Software upgrades for Nextfare and CPA included minor NCS and CPA updates	Remote
Maintaining current fare tables	Onsite
System Testing	
Design test documents and procedures	Remote
Test all deployed systems software	Remote
Conduct system analysis test after changes	Onsite
Review test data	Remote
Review test results	Onsite
Submit test results to management	Onsite
Deploy all system updates	Onsite
Maintain and support current test and production applications	Mixed
Liaison with CUBIC engineers to fix issues	Onsite
User Support	
Work with Customer support center to resolve customer/patron problems	Onsite
Work with Field Engineering department to deploy upgrades for rail-gates and fare-boxes	Onsite
A. Support personnel shall be thoroughly trained and familiar with the operation of all system reporting, system software and hardware. Support personnel shall act in a cooperative manner to increase the County personnel's ability to perform fault location, correction, and preventive maintenance and shall be competent to provide an on-going extension of the more formalized training specified elsewhere in this section. The Contractor shall permit "shadowing" of support personnel by County staff for training purposes at any given time.	
B. The Contractor shall perform a review of the business practices to identify the best use of the proposed System and make recommendations to improve efficiencies. The Contractor shall have onsite subject matter experts to analyze the existing utilization of current technology and make recommendations on how to incorporate industry best practices through the proposed System. The business and technology analysis shall identify areas that can be improved. The analysis shall define the variance between business requirements and new capabilities through the proposed System.	

2.16 Onsite Training

The Customer may require training from the Contractor at Contractor's hourly rate for training. The date and time of the training shall be mutually agreed upon between the County and the Contractor.

2.17 Software Operation and Maintenance

Cubic will be responsible for operation and availability of all back office applications. Cubic will provide updates for the Service as required to ensure the services continue to meet Service-Level KPIs, deliverables, and requirements as defined herein. The Updates will apply to the entire hosted system environment.

2.18 Interfaces and APIs

Cubic agrees to maintain the external data integration interfaces (including API functionality) with Subscriber's systems, so as to provide access to the systems. The Customer may request from time to time enhancements to the Software which would involve the development or use of application programming interfaces ("APIs") between the MDC system software and other transit related systems and applications furnished by MDC or third parties. Cubic shall develop and provide MDC, upon request, and at the stated hourly rates herein (applicable to all API development), external Cubic interface specifications and APIs so as to enable such interoperability with such other transit related systems and applications. MDC is granted a non-exclusive, royalty-free, non-transferable license to use such specifications and APIs for the express purpose of supporting the fare collection operation of the MDC system during the term of this Contract (and any extensions). This license includes a right to sublicense and provide such external Cubic interface specifications and APIs to third parties who are not competitors of Cubic for the same express purpose as described above, subject to the same license terms and limits, and confidentiality provisions of this Contract. Any other use outside of the fare collection operation of the MDC system is prohibited. Notwithstanding the foregoing, the parties acknowledge an objective to create interoperability between the transit environment and other regional transportation nodes such as parking, bike share, traffic management, and road tolling systems. Cubic agrees to work in good faith to support such efforts on commercially reasonable terms.

2.19 Deliverables

Cubic will provide design documentation in accordance with Table 3.

Table3. Deliverables

Deliverable	Due
Server Design Document	90 days after NTP
Backup Design Document	90 days after NTP
Application Delivery Design Document	90 days after NTP
Network Design Drawing	90 days after NTP

SECTION 3.

Terms and Conditions

3.1 Initial Term

The initial term ("Initial Term") of this hosted Service will be ten (10) years after the effective date of service commencement (e.g. switch over from current on premise to the cloud). The pricing for any renewal term will be the same as that during the immediately prior term, unless Cubic has provided written notice of a pricing change at least seventy-five (75) days before the end of that prior term, which increase will be effective upon the renewal-effective date and applied during the renewal term. A price increase will not exceed ten percent (10%) of the of the previous year's contracted subscription price.

This Agreement may be construed as an End User Agreement for purposes of third party software utilized to host the Cloud. Accordingly, Subscriber acknowledges that each third party software providers may be considered a third party beneficiary in the event that Subscriber breaches or otherwise defaults under the terms of this Agreement.

3.2 Access to Information

In relation to this Agreement, the Customer shall be responsible to provide the Contractor with the following:

1. Access to Software: The Customer shall grant the Contractor or its representatives, upon approval, access to the Software that Contractor might require from time to time.

2. Customer and/or Transit Facilities: The Customer will provide appropriate escort and access to physical equipment as needed.

3.3 Contact Representatives

3.3.1 Customer Contacts

The Customer contact representative shall be the Project Manager or designee. The Customer may, by notice in writing to the Contractor, substitute other employees or agents as its designated representatives for purposes of this section.

3.3.2 Contractor Contacts

The Contractor shall provide the Customer Project Manager with the contact information of all contract representatives, including the Contractor's Project Manager, and key maintenance and support personnel, upon the commencement of this Agreement.

Any changes to the Contact Representatives during the term of this Agreement shall be submitted to the Customer prior to the change, whenever possible, or immediately thereafter.

3.4 Payments

In payment of the services to be provided by the Contractor hereunder, the Customer shall pay Contractor on an annual basis the yearly amounts listed in Section 1 of Schedule B. Payment of any extension period or period not lasting one year in duration shall be made on a prorated basis, and billed not prior to 30 days after the extension period expires. The Contractor shall invoice the Customer for Maintenance and Support Services annually in advance, unless the Customer terminates Maintenance and Support Services for a subsequent Maintenance Period as provided herein. All payments to Contractor under this Agreement shall be payable in U.S. dollars, and paid within 45 calendar days from receipt of invoice.

All travel costs and travel related expenses incurred by the Contractor shall adhere to CH.112.061 of the Florida Statutes as they pertain to out-of-pocket expenses including employee lodging, transportation, per diem, and all miscellaneous costs and fees. The Customer shall not be liable for any such expenses that have not been approved in advance, in writing, by the Customer.

3.5 Termination

The Customer, at its sole discretion, may terminate this Agreement within sixty (60) days notification to the Contractor. The Contractor, upon notification of termination, shall refund to the Customer the pro-rated portion of the prepaid and unused amount for Maintenance and Support Services. The termination of this Agreement does not release the Contractor's obligation to deliver permanent resolution to any open problems reported to the Contractor as specified in the Maintenance and Support Table (Table 1). Refund of any amounts by the Contractor to the Customer shall be made only after all open commitments and/or any outstanding obligations have been agreed to and finalized with the Customer.

3.6 Confidentiality

1. All Customer and Contractor Developed Works and other materials, data, transactions of all forms, financial information, documentation, inventions, designs and methods obtained from each other in connection with this Agreement for which the parties hold the proprietary rights, constitute Confidential Information and may not, without the prior written consent of the disclosing party, be used by the other party or its employees, agents, subcontractors or suppliers for any purpose other than for the fulfillment of both parties obligations under this Agreement, unless required by law. In addition to the foregoing, all Customer employee information and Customer financial information shall be considered Confidential Information and shall be subject to all the requirements stated herein. Neither party nor its employees, agents, subcontractors or suppliers may sell, transfer, publish, disclose, display, license or otherwise make available to others any part of such Confidential Information without the prior written consent of the disclosing party. Additionally, the parties expressly agree to be bound by and to defend, indemnify and hold harmless the disclosing party, and its officers and employees from the breach of any federal, state or local law in regard to the privacy of individuals.

2. The Customer and Contractor shall advise each of its employees, agents, subcontractors and suppliers who may be exposed to such Confidential Information of their obligation to keep such information confidential and shall promptly advise the disclosing party in writing if it learns of any unauthorized use or disclosure of the Confidential Information by any of its employees or agents, or

subcontractor's or supplier's employees, present or former. In addition, the parties agree to cooperate fully and provide any assistance necessary to ensure the confidentiality of the Confidential Information.

3. It is understood and agreed that in the event of a breach of this Article damages may not be an adequate remedy and the disclosing party shall be entitled to injunctive relief to restrain any such breach or threatened breach. Unless otherwise requested by the Customer, upon the completion of the Services performed hereunder, the Contractor shall immediately turn over to the Customer all such Confidential Information existing in tangible form, and no copies thereof shall be retained by the Contractor or its employees, agents, subcontractors or suppliers without the prior written consent of the Customer. A certificate evidencing compliance with this provision and signed by an officer of the Contractor shall accompany such materials.

3.7 Subscriber Data Portability and Deletion

Upon request by Subscriber made within thirty (30) days after the effective date of termination or expiration of the hosted Service, Cubic will make the Subscriber Data available for export or download. After that thirty (30) day period, Cubic will have no obligation to maintain or provide Subscriber Data, and will thereafter delete or destroy all copies of Subscriber Data in Cubic systems or otherwise in Cubic's possession or control as provided in the Documentation, unless legally prohibited.

3.8 Transition

Following the Initial Term of the hosted Service, the following are available to ensure continuation of service:

- **Renew** the existing contract agreement and continue the Hosted Service with Cubic, or
- **Transfer** the Cubic NextFare and related software rights under a Software License (and other third-party applications/licenses), as required to permit the continued operation of the Hosted Service directly to Subscriber, or
- **On Premise** - Provide instructions and requirements to move NextFare and associated AFC applications for Subscriber to set up and operate an On Premise Back Office, subject to a NextFare Software License (and other third-party licenses).

3.8.1 Transfer Capability

Ownership of the Software, including NextFare remains unchanged from hosted Service and shall remain with Cubic or relevant third-party. Subscriber will be granted a NextFare Software License (subject to license fees), with a right of use (along with third-party software and associated licenses) permitting Subscriber to obtain Cloud Service directly from the provider. All costs associated with the hosted Cloud Service would be assumed by the Subscriber.

The NextFare License right can be established, allowing continued use in the cloud environment for a mutually-agreeable period. All responsibility for operation and administration would then be assumed by the Subscriber; however the Subscriber will be able to separately contract for Cubic to perform the Software maintenance applicable to the NextFare instance of the software.

3.8.2 On-Premises Capability

Cubic will provide instructions and requirements for moving NextFare and associated AFC applications for Subscriber to set up and operate an On Premise Back Office server. NextFare applications will be transferred from the cloud environment onto nominated Subscriber server hardware. Cubic would provide professional services, as needed, at the then current Cubic prevailing labor rates.

NextFare software use (along with third-party software and associated licenses) would be addressed in a NextFare Software License (subject to royalty fees) with a right of use on Subscriber's On-Premise Back Office server hardware. All associated costs would be assumed by the Subscriber.

The NextFare License right can be established, allowing continued use on the On-Premise server hardware for a mutually-agreeable period. The Subscriber may wish to separately contract for software maintenance applicable to the NextFare instance of the software. Cubic will provide professional services as needed at the prevailing Cubic labor rates.

For any of the alternatives described above, Cubic can support the Subscriber's plan under a professional services agreement to assist in the migration of services, as well as provide an end user Software License arrangement and ongoing hardware and software maintenance and support.

SECTION 4.

Proprietary Rights

4.1 Cubic's Rights

Cubic is the owner and reserves all rights, title, and interest in and to the intellectual property underlying the Services and Software provided herein, including but not limited to, all related intellectual property rights to and in the Services.

4.2 Subscriber's Obligations

The Subscriber shall not, nor shall it allow a third Party acting on its behalf, create derivative works based on the Software, or otherwise copy, frame or, mirror any part or content of the Software, reverse engineer, or build a competitive product or any cloud or service based on information learned from the Software-as-Service provided by Cubic.

SECTION 5.

Hourly Rates

Additional Onsite Training

Any requests by the Customer for the training of personnel during the term of this Agreement will be provided to the Customer on an hourly rate basis. This is to include any required preparation of the training material, documentation, instructor course outlines, and the actual platform training delivery. Training delivery shall be the responsibility of the Contractor. The following rates shall apply:

Onsite Training	Hourly Rates
Year 1 - March 1, 2016 – February 29, 2017	$218.92
Year 2 - March 1, 2017 – February 28, 2018	$226.58
Year 3 - March 1, 2018 – February 28, 2019	$234.51
Year 4 - March 1, 2019 – February 29, 2020	$242.72
Year 5 - March 1, 2020 – February 29, 2021	$251.21
Year 6 - March 1, 2021 – February 28, 2022	$260.00
Year 7 - March 1, 2022 – February 28, 2023	$269.10
Year 8 - March 1, 2023 – February 29, 2024	$278.52
Year 9 - March 1, 2024 – February 29, 2025	$288.27
Year 10 - March 1, 2025 – February 29, 2026	$298.36

Software Modifications and Enhancements

Any requests by the Customer for Software modifications or enhancements during the term of this Agreement shall be provided to the Customer on an hourly rate basis. The hourly rate shall not be inclusive of any travel and per diem expenses. The following rates shall apply:

Modifications & Enhancements	Hourly Rates
Year 1 - March 1, 2016 – February 29, 2017	$258.00
Year 2 - March 1, 2017 – February 28, 2018	$268.00
Year 3 – March 1, 2018 – February 28, 2019	$277.00
Year 4 - March 1, 2019 – February 29, 2020	$287.00
Year 5 - March 1, 2020 – February 28, 2021	$297.00
Year 6 - March 1, 2021 – February 28, 2022	$307.00
Year 7 - March 1, 2022 – February 28, 2023	$317.00
Year 8 - March 1, 2023 – February 29, 2024	$327.00
Year 9 - March 1, 2024 – February 29, 2025	$337.46
Year 10 - March 1, 2025 – February 29, 2026	$348.26

SECTION 6.

Content Publishing

6.1 Public Engagement

A. In accordance with the approved marketing plan, DTPW will implement and perform one or more public information and marketing campaigns (each a "**Marketing Campaign**") in connection with the roll out of each Phase. Cubic will coordinate with DTPW marketing staff to ensure proper alignment with DTPW.

B. Notwithstanding any provision of the contract, to the contrary, Contractor shall have no right to use any element or aspect of or right to placement of any advertising, marketing or other private (non-Transit Agency) information on any of the fare system, Contractor Provided Fare Media (including Virtual EasyCard Cards), the EasyCard Mobile Application and System, or SFRTA Mobile Functionality, or to market or advertise to customers of the Transit Agencies without the Approval of the respective Transit Agency. In addition, Contractor shall have no right to use the name or any Trademark of a Transit Agency without the Approval of the respective Transit Agency.

C. **"Advertising Content"** means advertising, marketing, or similar content and communications (other than communications involving the utilization of the EasyCard Mobile Application itself) delivered to users of the EasyCard Mobile Application or consumers for whom the functionality of the optional SFRTA OBP Application is utilized. Advertising Content may include, by way of example and not limitation, placement of text advertising or announcements within menus of the EasyCard Mobile Application, placement of graphical and/or text advertising or announcements within graphical displays of the EasyCard Mobile Application, "push" messages delivered through the EasyCard Mobile Application, advertisements printed on paper tickets generated through the Metra OBP Application, sponsored information or other content embedded in the trip planner functionality of the EasyCard Mobile Application.

D. The EasyCard Mobile Application and System shall include the capability to deliver Advertising Content by virtue of publishing and intelligence features delivered as part of a Contractor supplied advertising tool and Advertising Optimization Functionality. The subject matter of such Advertising Content may consist of advertising, service announcements or other content produced by the Transit Agencies or their designees (**"Transit Agency Advertising Content"**) and may consist of advertising, marketing, sponsored content or other content or communications produced by the third parties (**"Third Party Advertising Content"**). Such content is further described and categorized below:

Content Category	Description	Fee Structure
1. Transit Agency Specific	Promotional messaging any of the transit agencies would like to publish using the full capabilities of the EasyCard Mobile Application and System to promote the use of transit services, the fare system, and/or the EasyCard Mobile application. DTPW	Free
2. Page Sponsorship	Building any page with an advertisement or logo sponsored by the advertiser. This might occur where an advertiser, (*e.g.*, Starbucks, Cadillac) approaches the transit agencies with a deal to put their logo on a specific app page.	Cubic will submit a proposal for each deal
3. Low Tech – Wide Distribution Ads	Utilizing the staging and publishing portion of the NextWave advertising tool to broadcast ads (*e.g.*, banner ads targeting all mobile app users). This might occur where an advertiser, (*e.g.*, Best Buy) approaches the transit agency with a Christmas sale sent to all mobile phones.	Net Ad revenue split 40% to the Transit Agency and 60% to Cubic
4. Third Party Enhanced	Transit Agencies allowing an advertiser to utilize	Net Revenue

Advertising	some or all of the intelligence gathered by customer use of the Mobile Application, NextWave, the app server and the fare system to target advertising to specific customer profile groups, (*e.g.*, Dunkin Donuts free donut with coffee to DTPWGreen line/Brickel frequent customers) or anonymous individuals.	split 40% to Transit Agency and 60% to Cubic
5. Cubic Provided Enhanced Advertising	Transit Agencies allowing Cubic to utilize some or all of the intelligence gathered by customer use of the Mobile Application, NextWave, the app server and the fare system to target advertising to specific customer profile groups, (*e.g.*, Dunkin Donuts free donut with coffee to DTPWGreen line/Brickel frequent customers) or anonymous individuals. This category is established for those initiatives originated by Cubic wherein the promotional partnership and commercial offering is presented to the agencies for approval.	Revenue split 40% to Transit Agency and 60% to Cubic

The revenue in categories 2 through 4 are the actual net revenues received by DTPWDTPW from such third-party contractor (netting out sales fees, commissions or other amounts retained by such third-party contractor).

In connection with any Advertising Program which DTPW Project Manager Approves to be fully implemented by Contractor as described in category 5 in the table above, the Contractor shall enter into contracts with advertisers and shall process all advertising materials and place such materials on the EasyCard Mobile Application and pay all direct and indirect cost of such Advertising Program, and in consideration therefor shall receive a commission in the amount of 30% of the gross revenues from such advertising (not netting out of any costs, overhead, markup, sales fees or commissions, any amounts retained by others, or any other amounts).

D. In each case, the policies concerning the volume, types, permissible subject matter, location and other aspects of the manner in which such Advertising Content may be utilized on the EasyCard Mobile Application and/or through the functionality of the Metra OPB Application shall be as agreed by the Transit Agencies in accordance with the Transit Agency IGA.

The delivery of Advertising Content on OBP printed tickets is not included as part of this Third Supplement. In the event that the delivery of Advertising Content on OBP printed tickets is desired, Contractor will provide a proposal to enable this capability.

E. Prior to launching EasyCard Mobile Application publishing and intelligence feature capabilities needed to deliver Advertising Content based on the content categories generally described in the table above, Contractor will submit a detailed Advertising And Promotions Program Plan which will address and describe in greater detail:

1. The publishing and intelligence features, functions and capabilities utilized by the Contractor provided advertising tool to ultimately deliver the Advertising Content by category as described in the table above

2. The business and technical support services that will be provided by Contractor related to each of the category of Advertising Content described in the table above which will include configuration of the advertising tool to coordinate delivery and prioritization of Advertising Content to a customer's mobile phone

3. Advertiser engagement models for transit direct and authorized 3rd party advertiser opportunity assessment, integration, and support (categories 1 through 4)

4. Advertiser engagement models for Contractor sourced advertising opportunities (category 5)

5. Advertiser opportunity summarization, presentation, and valuation guidelines

6. Privacy and data protection practices

7. Advertiser opportunity development, categorization, registration, and tracking

8. Advertising Content revenue tracking, collection, and distribution processes

9. Advertising And Promotions Program Plan overall performance assessment and benchmarking of advertising yields and revenue share formulae

Commercial representations as to the availability of the publishing channel will be subject to prior approval and adoption by the DTPW Program Manager of the Advertising and Promotions Program Plan.

F. In keeping with the Approved Advertising And Promotions Program Plan, Contractor may, from time to time, submit to the DTPW Project Manager proposals to implement programs to deliver Third Party Advertising Content to consumers through the EasyCard Mobile Application and/or Metra OPB Application ("**Advertising Sales Programs**") for review, consideration and Approval by the Transit Agencies. The Transit Agencies have no obligation to approve any such proposals and the Transit Agencies retain the right to solicit other proposals and to enter into agreements with other parties to implement any such Advertising Sales Programs per the categories above and in accordance with the Advertising And Promotions Program Plan. As opportunities are developed they will be categorized per the above schedule and commission structure. Such Commissions shall be paid to the Contractor based upon the actual net revenues received by Transit Agencies from such third-party contractor (netting out sales fees, commissions or other amounts retained by such third-party contractor). To the extent that the Transit Agencies Approve an Advertising Sales Program proposed by Contractor, Contractor shall ensure that Advertising Content delivered to consumers through the Contractor's Advertising Sales Program is not treated differently (including with respect to timing, priority, placement) than Advertising Content delivered to consumers through other Advertising Sales Programs Approved by the Transit Agencies, except to the extent such different treatment is authorized in writing by the DTPW Project Manager.

G. The Transit Agencies shall establish a committee consisting of representatives of each Transit Agency (the "**Public Engagement Advisory Committee**") to address marketing campaigns and advertising, if any, and related matters, including allocation of costs, expenses and revenues as provided in the Transit Agency IGA.

6.2 Data Procedures

A. The following defined terms shall have the meanings set forth below for this Section 6:

"**Aggregated Data**" means data generated through the aggregation of Application Information, Identification Information, Utilization Information, demographic information and/or other Data, irrespective of whether or not any portion of such aggregated data personally or individually identifies any individual or identifiable group of individuals.

"**Application Information**" means Data collected, generated, maintained, stored, accessed, processed or otherwise arising in connection with an individual's utilization of the EasyCard Mobile Application and/or the Metra OPB Application or the EasyCard Website, including screens, functionality or other content accessed by the individual (including time spent on pages and similar data).

"**Consumer Data**" means any and all personally or individually identifiable data or information (or data or information which there is a reasonable basis to believe is personally or individually identifiable) including, without limitation, Application Information, Identification Information, Utilization Information and demographic information

"**DTPW and SFRTA Data**" means any and all Data (excluding Joint Data) that is collected, maintained, stored, accessed, transmitted, generated, processed, disclosed or otherwise used in the course of operating and maintaining the fare system, including any and all Application Information, Identification Information, Utilization Information and other Consumer Data included in the foregoing.

"**DTPW Customers**" means those individuals who utilize any aspect of the fare system to purchase transit fares for usage of the bus and rail transit system operated by DTPW ("**DTPW Transit Fares**") or who establish a EasyCard Account under the OSFS Agreement.

"**Identification Information**" means Consumer Data consisting of an individual's last name (with or without a first initial or first name), social security number (or portion thereof), driver's license number, state or other governmental identification card number, account number, or credit or debit card number.

"**Joint Data**" means any and all Data that is collected, maintained, stored, accessed, transmitted, generated, processed, disclosed or otherwise used in the course of operating and maintaining the mobile ticketing server and fare system, which is maintained, warehoused or otherwise stored the Data Warehouse, including any and all Identification Information relating to any Transit Customer, any and all Application Information and/or Utilization Information relating to purchases of transit fares from any Transit Agency (including the nature and amount of the purchases made), utilization of the transit systems of the Transit Agencies, and any and all other Consumer Data included in the foregoing.

"**SFRTA Customers**" means those individuals who utilize any aspect of optional the SFRTA Mobile Functionality or optional SFRTA OBP Application or EasyCard Web Site to purchase Metra OSFS Transit Fares.

"**SFRTA Data**" means any and all Data (excluding Joint Data) that is collected, maintained, stored, accessed, transmitted, generated, processed, disclosed or otherwise used in the course of operating and maintaining the mobile app server, including any and all Application Information, Identification Information, Utilization Information and other Consumer Data included in the foregoing.

"**Transit Customers**" means DTPW Customers and SFRTA Customers. The Transit Agencies acknowledge that a single individual may fall within the definitions of one or more of the terms DTPW Customer, SFRTA Customer and that each such definition shall apply to such individual under the relevant circumstances.

"**Utilization Information**" means Consumer Data collected, generated, maintained, stored, accessed, processed or otherwise arising in connection with an individual's utilization of an individual's purchases of transit fares for any Transit Agency (including the nature and amount of the purchases made), utilization of any Transit Agency's transit system and/or any patterns associated with the foregoing (including any geo-location data collected in connection with the foregoing).

B. Contractor acknowledges and agrees that, as between Contractor and the Transit Agencies, the Transit Agencies own all Data (including Consumer Data and Aggregated Data) and such Data shall be considered Confidential Information of the Transit Agencies, with the Transit Agencies' agreement amongst themselves determining ownership of such Data amongst themselves. Contractor acknowledges and agrees that Contractor shall handle and protect such Data (including Consumer Data and Aggregated Data) as set forth in this contract.

C. Without limitation to the foregoing, Contractor shall provide access to the Transit Agencies through the app server and the Data Warehouse and, with respect to information not readily available in the app server and the Data Warehouse, as requested from time to time by the Transit Agencies, the Data of the Transit Agencies in a format reasonably accessible by the Transit Agencies. In addition, to the extent that Contractor performs any analysis of Data of the Transit Agencies for advertising/promotional purposes, Contractor shall inform the DTPW Project Manager of the nature of such analysis and shall make the results of such analysis (which shall be considered within the definition of Data) available to the Transit Agencies in a format reasonably accessible by the Transit Agencies. To the extent that the DTPW Project Manager provides written direction to Contractor that identified classes

or categories of Data (including identified classes or categories of Consumer Data) should not be collected or retained by any component of the fare system ("**Prohibited Data**"), Contractor shall refrain from collecting such Prohibited Data or, if refraining from collecting such Prohibited Data is not technically feasible, Contractor shall on an ongoing basis immediately delete and not retain in any manner such Prohibited Data. The DTPW Project Manager shall consult with the SFRTA Project Manager before designating any classes or categories of DTPW Data as Prohibited Data. The DTPW Project Manager shall, at the written direction of the SFRTA Project Manager, designate as Prohibited Data any classes or categories of SFRTA Data identified by the SFRTA Project Manager and, the DTPW Project Manager shall not designate any SFRTA Data as Prohibited Data unless the SFRTA Project Manager so instructs the DTPW Project Manager. The DTPW Project Manager shall not designate any Joint Data as Prohibited Data without the prior written consent of the SFRTA Project Manager.

End of Section

Signature Page Follows

Signed by and on behalf of Miami-Dade County:

By: _____
(Signature)

_____
(Name and Title)

By: _____
(Signature)

_____
(Name and Title)

Approved as to Form and Legal Sufficiency

By: _____
(Signature)

_____
(Name and Title)

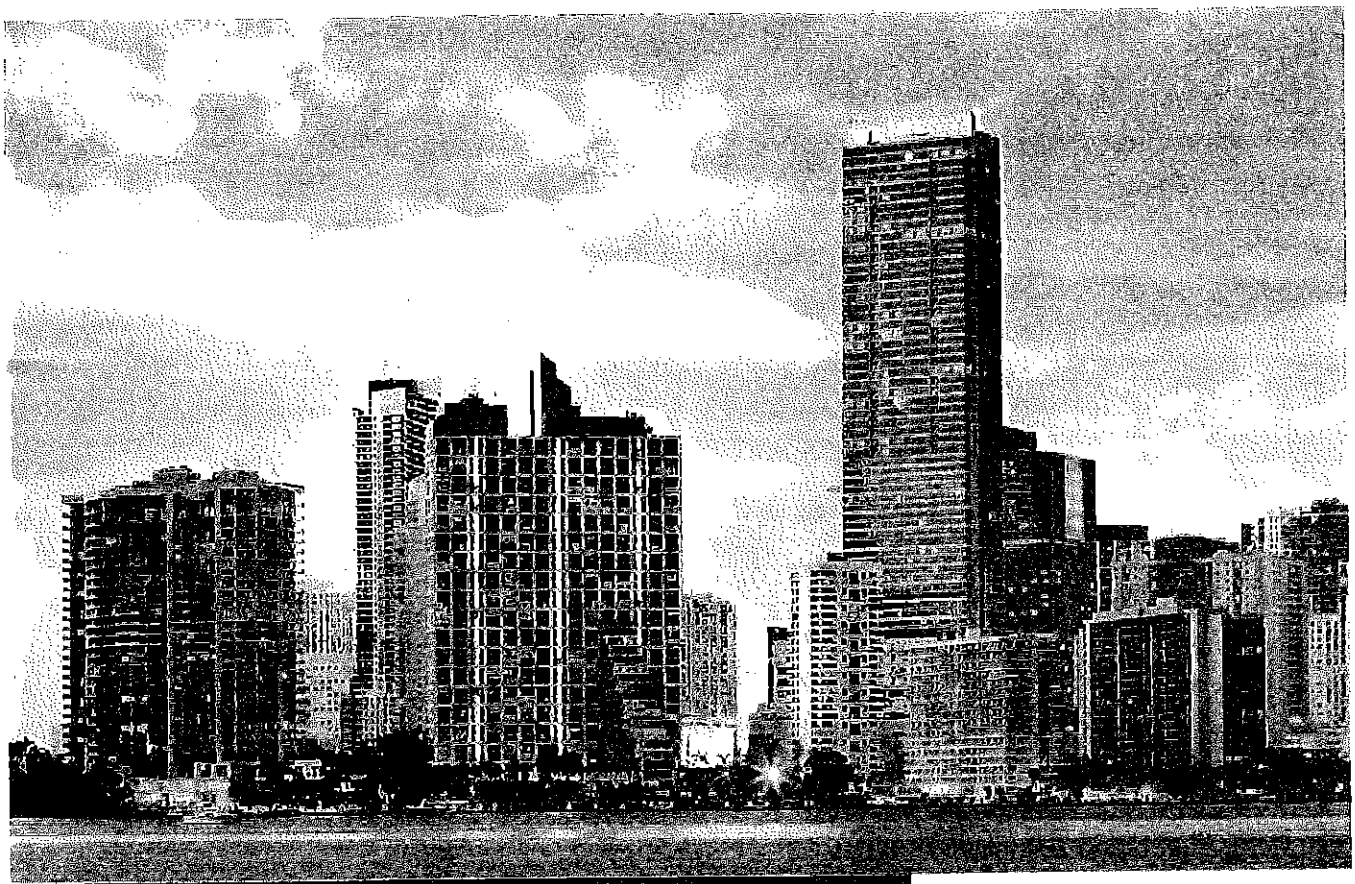
Corporate Seal

Signed by and on behalf of (Contractor):

By: _____
(Signature)

Michael Andranovich, Sr. Contracts Mgr.
(Name and Title)

Corporate Seal



CUBIC™ | Transportation Systems

Miami Department of Transportation and Public Works (DTPW)

Exhibit A-2

Automated Fare Collection Modernization | Scope of Services

SUBMITTED BY:
Cubic Transportation Systems, Inc.
5650 Kearny Mesa Road
San Diego, California 92111

30 June 2016

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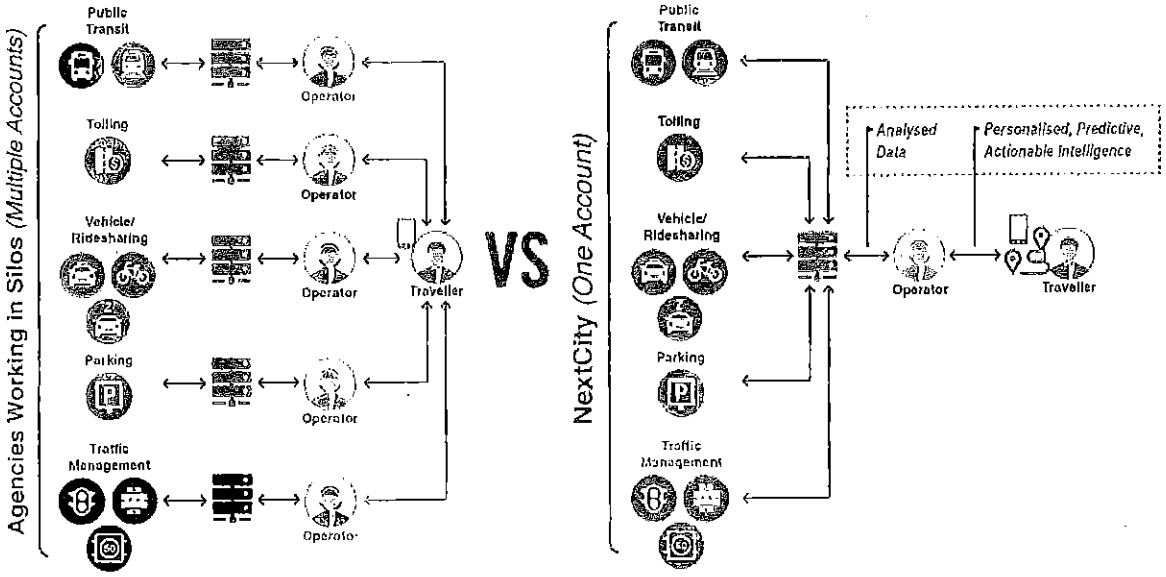
SECTION 1.
Executive Summary

Miami-Dade Department of Transportation and Public Works (DTPW) and its operating partner the South Florida Regional Transportation Authority (SFRTA) serves more than 250,000 passengers per day across commuter rail, inner city rail, and bus services in South Florida. The EASY® Card links these services with more than 780,000 cards facilitating seamless payment and through ticketing.

While the existing system successfully processes EASY Cards, technology rapidly advanced since its inception and more recently-deployed systems offer user conveniences such as smart phone self-service, passenger information and payment tools, acceptance of open contactless payment products (both cards and mobile), real-time distributed smart card updates, wider availability of re-load facilities to bus riders, and innovative passenger loyalty programs.

Cubic Transportation Systems, Inc. (Cubic®) invested in the evolution of its hardware and software, actively engaging and integrating the offerings of leading specialty suppliers in the mobile, wireless, and payments communities. This strategic vision and framework, branded NextCity™, contemplates an integrated mobility network where customers have both the information and the tools to most efficiently plan and navigate their journeys by combining private and shared vehicles, rail, bus, toll, bike share, and parking services. At the heart of this is a single transportation account that links these services and enables the integration of data needed to make this possible.



In keeping with this vision, the existing EASY Card infrastructure and card program provides a solid foundation for modernization that can bring about these state of the art technology upgrades and user enhancements while taking maximum advantage of the existing investment and user familiarity with the system.

With this proposal, Cubic offers to bring to Miami the best of breed solutions deployed in Chicago, London, and Vancouver, while minimizing transition risk and maximizing operational efficiency. We are working with a number of partners including MasterCard®, Passport, Capital One® Bank, Samsung™, Fit Bit, American Eagle®, Moovel™, and On Track Innovations, all of which promise to bring creative offerings that will leverage the upgrades once in place. The updated platform design will facilitate the ready inclusion and connection of additional participants such as Broward, Palm Tran, public and private parking operations, and other regional stakeholders.

This offer includes a range of services including asset refresh, back-office hosting and applications management, delivery of integrated mobile solutions that combine EASY Card management, mobile ticketing, NFC tap and pay, and multi-modal trip planning in a single DTPW-branded app.

Cubic demonstrated its ability to support integration with third-party services such as American Eagle, GlobeSherpa, Clever Devices, and others. For this project we propose to include Passport's mobile application services in tandem with MasterCard's MasterPass mobile wallet platform.

The open architecture will support additional 3rd party integration as the program evolves.

1.1 Introduction

At the core of this offer is the phased migration of the current NextFare® back office to a new cloud-based environment hosted by Microsoft® AZURE™ (Azure) that combines the latest release of the NextFare platform with the third generation of the Cubic Payments Application (CPA3), our NextAccount® account-based processing engine, and our NextWave® mobile gateway platform. Combining the features of these new back office components with upgrades to the DTPW and SFRTA (at their option) field infrastructure will open the system to the direct acceptance of contactless and mobile payment products, the launch of an EASY Card mobile application inclusive of Near Field Communication (NFC) tap and pay and bar code ticketing solution for convenience of travelers who carry no EASY Card.

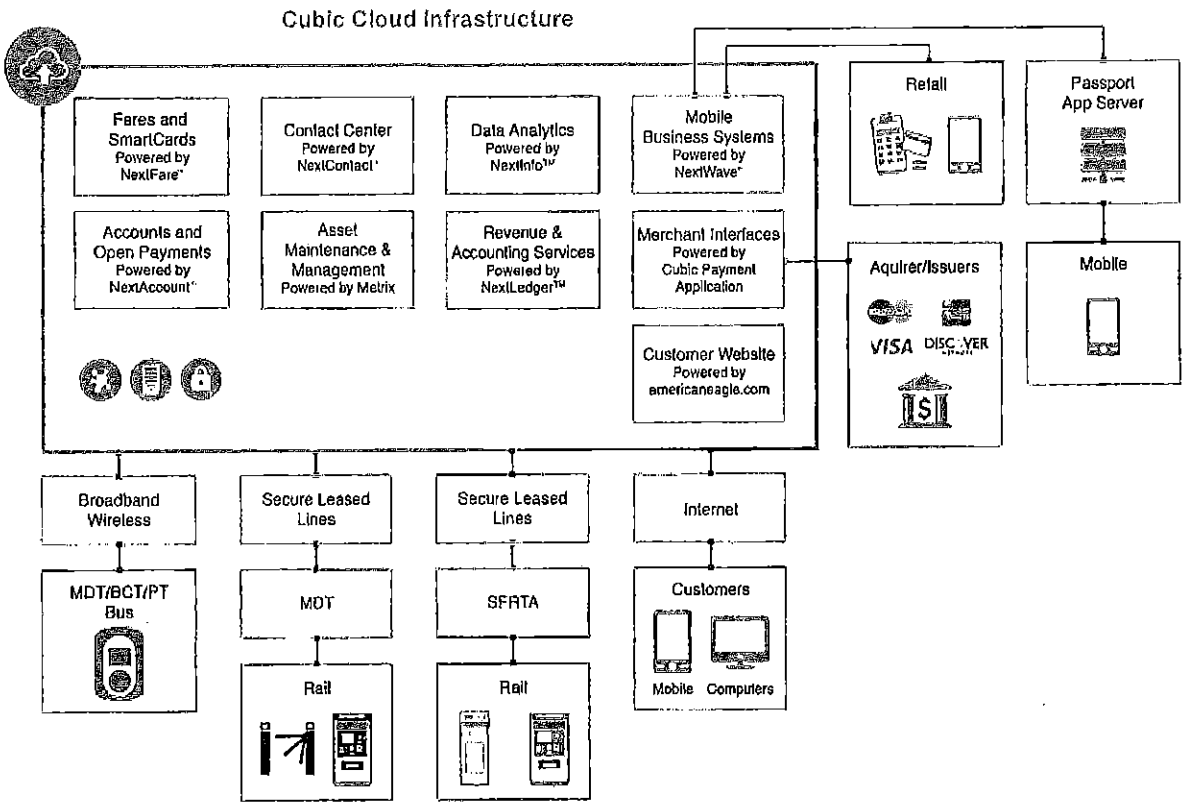


Figure 1-1. Cubic Back Office Systems In the Cloud

With an enhanced payment system, and on-demand services, DTPW and SFRTA will benefit from cost efficiencies and cost avoidance while enabling Payment Card Industry (PCI) compliance with the Cubic Hosted facilities. If DTPW and elects to execute the associated option, the agency can achieve Europay, MasterCard® and Visa® (EMV®) compliance. From previous similar project experience, agencies including Chicago, London and Brisbane, have experienced net reductions in operating costs through Cubic's upgraded technology and outsourced services.

Over an 18 month period, DTPW and SFRTA will benefit from Cubic's strict adherence to an implementation schedule. This proposal is structured in phases that will drive schedule based on DTPW's elections to proceed:

- **Cloud Services Core:** This phase will migrate the service and support for the EASY Card back office system from the legacy instance of NextFare® (hosted by DTPW) to Cubic's latest release, NextFare 7, hosted by Cubic in the Microsoft Azure Cloud. This phase also includes updating the payment gateway to Cubic's CPA3 platform, launching the initial release of the EASY Card mobile application, and providing the ongoing hosting, maintenance, and application support. The solution will be PCI compliant.
- **Systems Upgrade and Mobile Enhancements:** This work expands upon the Cloud Services Core to incorporate the latest versions of Cubic's state-of-the-art NextAccount and NextWave platforms which support advanced mobile, open payment, and account based processing capabilities. The System upgrade includes the provision of new software to the upgraded devices to enable these new capabilities and the release of value added services within the mobile app.

- **Extended Back Office Support:** upon completion of the enhancements, theCloud services will be extended for the ongoing support and maintenance of the upgraded back office and mobile solution over the 10-year operating term.
- **EMV Compliance Option:** This option provides the on device software for TVMs, EMV capable payment accepting POS tablets, and includes back office certifications required enabling EMV compliance.
- **Key Dependencies:** While no hardware modifications are specifically required to implement the Cloud Core work scope, the first release of the mobile app includes a bar code ticket capable of scanning and validation. Cubic has separately offered, under an ongoing State of Good Repair (SOGR) hardware program, bar code retrofit kit for one entry and one exit per gate array. This hardware upgrade will have to be implemented in order for the mobile bar code ticket to permit entry through faregates. Under the same SOGR initiative Cubic has also offered faregate upgrades, TVM upgrades, and a tablet based retail POS application that would create the hardware and software environment necessary to support the Systems Upgrade option. This SOGR work will be pre-requisite to the implementation of both the enhancements and the EMV Compliance Option.

To better understand our approach, our proposal is organized in a manner that follows the implementation plan.

1.2 Upgrade and Migration Service

The overall objective is to work with the agencies to ensure the upgraded system is scalable, maintainable, secure, reliable, and cost efficient. Together, the agencies and Cubic, will meet these objectives through our proven approach.

1.2.1 State of Good Repair Dependency

Cubic has offered a field retrofit kit for the fleet of DTPW/SFRTA Ticket Vending Machines (TVMs) to encompass a new Single Board Computer (SBC), PIN Pad, DIP reader, and reader upgrade package (TR3 for TR2). New SBCs and TR3s will provided for faregates and the bus fleet will be upgraded with both TR3s and hardware enabling the DCU3s with real time wireless connectivity. All devices will be provided with software enabling them to communicate and support the full feature range of NextFare 7 in the Cubic Cloud Platform.

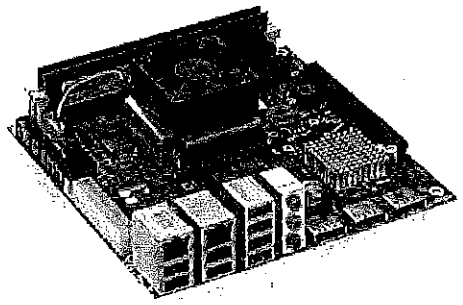


Figure 1-2. Example Single Board Computer

1.2.2 Cubic Cloud Core

Cubic will migrate from the current DTPW hosted instance of NextFare and CPA1 to the new cloud based instance of NextFare 7, CPA3, and NextLink. The platform will be integrated with Passport's OpsMan mobile application server and the app integrated with NextLink to facilitate secure reading and writing of the EASY Card by NFC enabled mobile phones. The app will support both the sale of EASY Card product loads and the sale and in app publishing of a visual ticket complemented by a bar code capable of electronic validation.

Real-time mobile loading of EASY Cards will significantly enhance user convenience, particularly for bus riders, as there will no longer be the lag time associated with the delivery of auto-load directives. Users will be able to check their balances in real time, view transaction history, purchase fare products, and get real time notifications. The app is designed in a consistent manner with the recently completed Chicago Ventra app which is providing integrated services to users of CTA, PACE, and Metra across the Chicago region.

1.2.3 Systems Enhancements

System Enhancements will leverage the foundation laid in place by the Cloud Services Core, and the SOGR scope. The upgraded infrastructure will support software upgrades and real time wireless communications necessary for account based and open payments and a variety of innovative mobile utilities. Enabling these upgrades will entail expansion of the Cubic Cloud platform with a range of new back office components and integration third party services in support of NFC, trip planning, and intelligent content publishing.

New system features will include the ability to accept open payment credentials at faregates and on buses and extensions of the mobile app to support mobile tap and pay.

Starting in Section 2.3, we provide a roadmap that speaks to each step for the migration to the upgraded system and the enabled features. In every effort Cubic works with agencies to identify 'Hot Button' issues, all of which we can address. The key issues we openly recognize for Cloud Computing are built into our system as general functionality:

- Credit Card Processing
- Directed Threshold Autoload of Passes and Value
- Hotlist and Un-Hotlist
- Tablet based Retail Point of Sale App
- Customer Support
- Application Programming Interfaces (API)
- Payment Card Industry (PCI) Compliance
- Support of Enhanced Fare Policy
- Enhanced Reporting and Analytics
- Limited Use Media Support

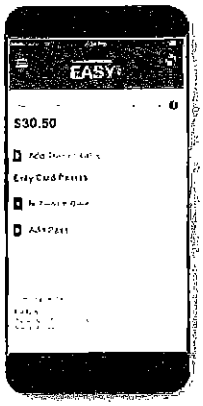


Figure 1-3. Mobile Application

1.2.3.1 Central System Software Modules

Cubic proposes to introduce its NextCity modules, currently being used by some of the largest transit organizations in the world. For example, Transport for London amasses four billion annual transactions and Chicago Transit Authority with nearly half a billion annual transactions. These tested modules include:

- NextFare
- NextInfo™
- NextLedger™
- NextAccount
- NextWave®
- Cubic Payment Application

1.2.3.2 Cloud Infrastructure

Among the many benefits of the Cubic Cloud Platform is DTPW no longer bearing the burden in central computer software and equipment acquisition and maintenance. Detailed information is provided in Section 2.3.4 of our proposal.

1.2.3.3 Security and PCI

Cubic's Cloud Infrastructure is designed, built, and operated in accordance with a comprehensive security management framework which is aligned with the ISO 27001 Information Security Management System (ISMS) requirements. Section 2.3.5 explains our approach to Security and PCI. This approach follows PCI requirements and has been vetted by Cubic's internal security and compliance team.

1.2.3.4 Agency Access to Central System

As described in Section 2.3.7, DTPW/SFRTA will have real-time access to the Cloud Service. Information presented will be secure, thus not compromising the integrity of any private data.

1.2.3.5 Transaction Records

Transaction records, described in Section 2.3.8, provide information on all completed and invalid transactions. The records stored include date, time, location (per the GPS feed where applicable), vehicle and/or entry device number, operator ID if applicable, and other specified data with each transaction that takes place.

1.2.3.6 Device Configuration and Integration with the Cubic Cloud Platform

The system upgrade includes the implementation of a communications system between individual devices and the Cubic Cloud Platform. Part in parcel to this is the establishment of real time wireless communications between the on bus fare validators and the cloud platform. Cubic will develop a safe and secure system which will be routed through an encrypted link to the cloud.

1.2.3.7 Account-Based Processing with NextAccount

With the system upgrade, the back office will be upgraded to enable account-based processing functionality delivered by our NextAccount product. This proposal offers DTPW the ability support Pay As You Go (PAYG) open payment transactions. NextAccount in tandem with CPA3 provides the facilities to tokenize bankcard numbers, manage control lists (both positive and negative) and generate priced transactions which are pushed out for authorization, clearing, and settlement. As such, both contactless bankcards and mobile payment devices may be used by travelers for one of PAYG fares.

As a future option, DTPW may extend NextAccount to support the full range of fare rules for both closed and open loop contactless payment credentials.

Our clients' experience demonstrate that while Open Payment PAYG offers strong convenience for impulse riders, visitors, tourists, and special event passengers, the core ridership community still seems to prefer the use of a transit card. From a financial perspective, this is also compelling for the transit authority as current pricing rules make discounted fare processing on open PAYG transactions prohibitively expensive.

Our clients are also finding that there are trade-offs both in risk management and user experience as you move the closed loop card from a card based to an account based instrument. Off-line risk management is eased with a card based solution and the user is presented more information by the terminal at the point of use than with an account based card. On the other hand, modification of fare rules and the ability to extend stored value acceptance to other applications is eased by an account-based architecture.

In the end, DTPW will need to weigh these trade-offs in concert with the costs of fare policy implementation when deciding how fare to go with the account based engine.

The system upgrade will also see us completing the functionality of mobile application to include closed loop tap and pay along with journey planning, and intelligent content publishing. The content publishing elements will provide a powerful engagement tool for building the consumer relationship and influencing ridership behavior.

While the journey planner proposed is a solution developed by Passport, our team understands the desire by DTPW to explore the utilization of Moovel's RideScout solution. Moovel has recently introduced a software developer's kit (RideTap) that enables third party apps to expose its ride aggregation services within their apps. Cubic and Passport will be happy to propose an option to the trip planner that incorporates this feature.

The mobile app scope of work does include taking existing arrivals feeds as are being used by the DTPW Bus Tracker app and presenting them within an identified tab.

As an option, Cubic can also include real time bus arrivals generated from your existing real time passenger information (RTPI) supplier or our NextBus predictive arrivals engine. We would be happy to discuss these options with you at your convenience.

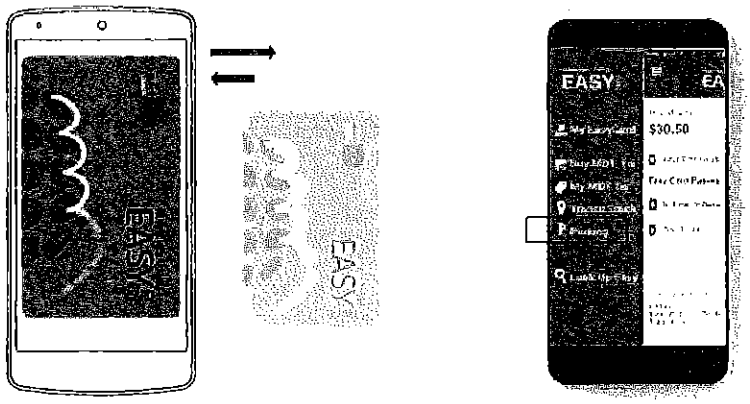


Figure 1-4. Proposed EASY card mobile integration with Parking.

In addition, Cubic is working with its partners to fold in enhanced parking functionality as part of our broader NextCity strategy. Passport is a leading provider of Pay-by-Cell parking solutions and can either deliver its own parking solution or we can expose an interface to Pay-by-Phone to create an integrated transit and parking experience. As with RTPI, we are happy to explore these options at your convenience.

1.2.4 EMV Compliance Option

Upon DTPW election of this option, Cubic will provide software enhancements to the upgraded TVMs, EMV capable payment accepting POS tablets and the existing back office to enable EMV compliance for credit and debit card purchases. No additional hardware will be required in this phase, assuming the Authority has proceeded with the Cloud Services Core.

1.3 Cubic Services

Cubic's specialized revenue management solution enhances and manages an entire operation – or individual elements of the operation – depending on agency requirements.

		AFC					
		London	Sydney	Chicago	Vancouver	San Francisco	Brisbane
Delivery Capabilities	Design	●	●	●	●	●	●
	Build	●	●	●	●	●	●
	Deployment	●	●	●	●	●	●
	Data Migration	●	●	●	●	●	
	Transition	●	●	●	●	●	●
System Capabilities	DESFire	●	●	●	●	●	
	Card Based	●	●	●	●	●	●
	Account Based			●	●		
	Open Payments	●		●	●		
	Customer Website			●	●		●
	Mobile Ticketing			●		●	
Customer Support Services	Card Distribution		●	●	●	●	●
	Customer Services		●	●	●	●	●
	3rd Party Retail Management	●		●	●	●	●
	Corporate Benefits Program	●		●		●	●
	Call Center		●	●	●	●	
	Walk-in Center			●	●		
Asset Maintenance Services	Device Workshop Repair	●	●	●	●	●	●
	Inventory Management	●	●	●	●	●	●
	Field Maintenance	●	●	●	●		●
	Obsolescence Management	●	●	●	●		●
	Service Desk	●	●	●	●		●
Operational Technology Services	System and Network Admin.	●	●	●	●	●	●
	Security Management	●	●	●	●	●	●
	System Configuration Manag.	●	●	●	●	●	●
	Infrastructure Management	●	●	●	●	●	●
	Software Maintenance	●	●	●	●	●	●
Financial Services	Cash Collection Services		●	●	●	●	●
	Financial Reconciliation		●	●	●	●	●
	Clearing and Settlement		●	●	●	●	●
Technical Services	Program Management	●	●	●	●	●	●
	Engineering Support	●	●	●	●	●	●
	Test Support	●	●	●	●	●	●

Figure 1-5, Cubic Services and Capabilities

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For DTPW, Cubic proposes a combination of Business Support, Operational Technology, Revenue Management Services, and optional services like Third-Party Retail Management, Institutional Program Management, Marketing, and Analytics Services related to the upgraded fare collection environment. This section refers only to optional services associated with Third-Party Retail Management and Management, Marketing, and Analytics Services. Hardware to execute Third-Party Retail sales is descried in Section 2.6.2.2.4 and NextInfo tools for performing analytics are defined in Section 2.3.2.3 and are included in this Scope of Services. Additional details of Cubic services are located in Section 3.1 of the proposal. Primary services provisions include:

- Cloud Infrastructure Management Services
- System and Network Operations
- Mobile application management and support
- Third-Party Software Support
- Cubic Application Support and Maintenance
- Information Security Services

1.4 Proven Solution

Several leading technology research companies such as Gartner and International Data Corporation anticipate a large adoption of Cloud-Based solutions. In addition, on a worldwide level, both public and private organizations are moving to cloud-based infrastructure. The rational for the movement includes security and cost effectiveness; each of which are addressed in our proposal.

Cubic looks forward to extending our partnership with DTPW and SFRTA by providing this system modernization program with Cloud-Based Services. We offer credentials that cannot be matched by any other organization:

- A 'certainty of success' which is supported by a 40 year record of delivering innovative transportation technology projects and long-term customer relationships. Evidenced by Transport for London, which we deployed in 1978 and is now described by Sir Peter Hendy, Commissioner for Transport for London, as TfL's "best supplier partnership."
- Deep experience of having worked with multi-modal, multi-agency integrated systems–Cubic systems process over 17 Billion dollars of revenue every year and integrate over 450 operators across 20 regional back-office systems.
- Ongoing back office hosting and operational experience for the regional fare systems in San Francisco, Chicago, Sydney, and Vancouver.
- An opportunity to jointly collaborate and innovate with DTPW, to continually evolve the system thus reaping the benefits inherent in our product road map across multiple transit geographies.

Cubic believes our proposal is unique in offering all of these benefits to DTPW. We look forward to meeting with the Authority and discussing the possibilities.

SECTION 2.

Cubic Cloud Platform: Asset Refresh, Upgrade and Migration Service

2.1 Overview

Cubic Transportation Systems, Inc. (Cubic®) proposes to migrate Miami-Dade Transit's (DTPW) existing fare collection environment away from its current central system and connect newly upgraded field devices to the new environment. DTPW can move to an upgraded central system and software hosted in Cubic's Cloud Platform while still seamlessly connecting to the newly upgraded DTPW infrastructure.

Cubic's Cloud Infrastructure, built on the strength of NextFare® 7.0, contains a significant number of core application and user interface enhancements for DTPW, including:

- PCI Compliance for the cloud back office system.
- Replacement of Cubic Payment Application (CPA1) with the updated CPA3.
- Additional Web Ticketing security support.
- Integration and upgrades of Commercial-off-the-Shelf (COTS) tools like SAP®/Oracle®/Coda®:
  - Upgraded to WebLogic® 10.3 or TomEE
  - Upgraded Oracle to 12g.
- Enhanced reporting tools.
- Compliance with Europay MasterCard Visa (EMV) requirements (Optional).
- Availability of standard integration Application Programming Interfaces (APIs).
- Preserve support for existing cards, while laying foundation for Account-Based open payments.
- Automated file upload processing.
- Introduction of delta lists (updates with changes to the existing list instead of new list download) to reduce download size of hotlists and autoloads, and expanded list sizes from the back office (device upgrades are provided in a separate proposal).
- Business Entity (Retailer) management.
- Invoicing for prepaid benefits.
- Automated credit/Automated Clearing House (ACH) billing.
- Enhanced prepaid benefit management and billing.
- Central Device Communication Server (CDCS) to manage the process of intelligently publishing software and configuration data to devices.
- Dashboard monitors near real-time health of back office system.
- The introduction of ServiceNow for monitoring device heartbeats and asset management.
- Upgrades to ongoing NextFare 7.0 software updates and upgrades through the Cloud Service.

The project is structured to focus specifically and exclusively on the features and functionality to quickly deploy the cloud services that allow DTPW to maintain current operations and to address the most prescient concerns of the agency related to an aging back-office environment with components that have reached end-of-life. Upon contact execution Cubic will immediately setup NCS7 and CPA3 in the cloud in preparation for transition from the on premise hardware. Devices will then be pointed at NCS in the cloud in accordance with the ongoing SOGR program.

2.2 Overall Program Objectives

Project scope includes:

- Upgrading assets and resolving product obsolescence issues
- Establishing a more open processing environment to support new value added features and partnerships
- Launching a mobile application targeted at improving the user experience and offering new convenience options
- Enabling the acceptance of open payment credentials in both card and mobile formats
- Creating a platform for further expansion as per the needs and wants of DTPW and the regional operators
- Moving the back office to a cloud based environment to create efficiency in cost, support, and program evolution
- Access to upgraded and updated central system tools for the AFC environment
- Updated device connectivity for current field devices connecting to the new cloud tools
- Delivery of new features and functionality

Cubic will accomplish the work in keeping with DTPW execution of contracts by phases and options:

- **Cubic Cloud Core Services:** Migrate from the legacy DTPW NextFare instance to NF7 and CPA3 in the cloud and launch release 1 of the EASY Card mobile app and services and support of the Cubic Cloud Core Services for a period of 10 years
- **System Upgrade:** Implement device level and back office software upgrades for new features, and extend the mobile app.
- **EMV Option:** Implement EMV compliance upgrades to the fleet of ticket vending machines and EMV capable payment accepting POS tablets.

Figure 2-1 below illustrates a high-level proposed timeline for the three major phases of the proposed project.

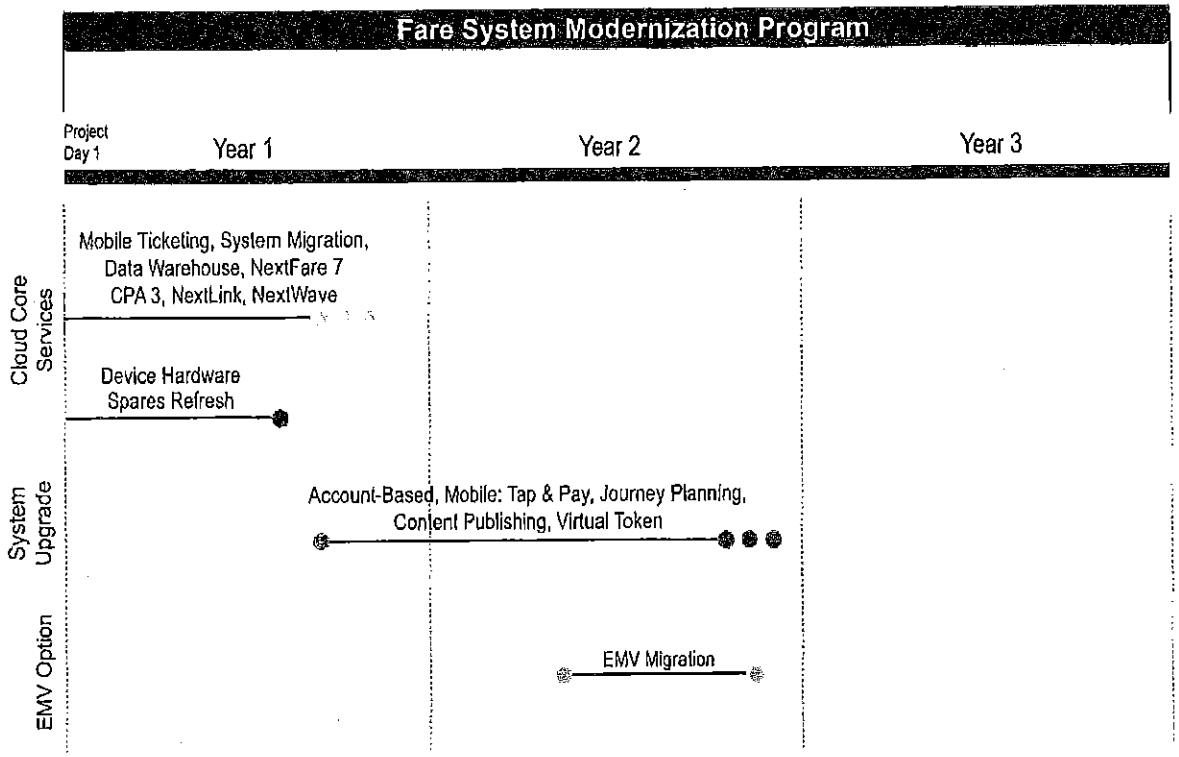


Figure 2-1. Implementation Schedule

2.3 Cubic Cloud Core Services

This element will see the back office support for the EASY Card system migrate from the legacy instance of NextFare (hosted by DTPW) to Cubic's latest release, NextFare 7, hosted by Cubic in the Microsoft Azure Cloud. This migration includes updating the payments gateway to Cubic's CPA3 platform and the launch of the initial release of the mobile app all to be provided inclusive of ongoing hosting, maintenance and application support. The solution will be PCI compliant and, upon implementation of the associated option (see below), EMV ready.

2.3.1.1 Mobile Orders

The upgraded system will provide full integration with the mobile application. All mobile orders for DTPW mobile tickets will flow through the Back Office Order Management System, and payments will be processed by CPA 3.0. The system will track Use, Sale, and Recall transactions of all single use tickets.

Data Migration includes integrating mobile Orders, Payments, and Sales/Use/ Recall transactions from the Passport mobile back office system into the new back office system. This includes migrating:

- All Orders, Payments, and Sales/Use/Recall transactions will be integrated into CCBO Data warehouse.
- All Mobile App users that are not will be integrated into NCS (and possibly parts into the CRM Service) to include:
  - Account credentials – username/password
  - Contact info
  - Address
  - Funding sources

2.3.1.2 NextFare Central System Upgrades

The NextFare Central System will be upgraded to provide basic mobile ticketing functionality.

- The initial mobile app release will be created to manage EASY Cards and sell DTPW and, optionally, SFRTA tickets (in phone).
- The initial app release will support the following Mobile card functions through the Mobile app:
  - EASY Card balance query via NextLink
  - EASY Card top up via NextLink
  - Transaction history
  - Card status.
- In the initial phase, mobile-specific notifications will be introduced – this is a new method of communicating directly with Mobile customer via Push Notifications and email. Notifications will be sent via the Cubic Notification Gateway, or "CNG". These notifications include:
  - Mobile Ticket Expiring
  - Mobile Ticket Expired
  - Low EASY Card balance
  - Pass Expiry notice.

2.3.1.3 CRM

The NextContact service will provide API level access to support CRM use cases. These use-cases include user Authentication, ability to retrieve (via API access) Order and Payment details, and basic Contact management including Account Creation/maintenance, maintaining billing sources, updating contact information, and viewing customer transaction history. The ability to record email notifications sent to contacts is also included – this email / contact history can be retrieved via API access.

All access to this data is via API, allowing DTPW/SFRTA to integrate with the CRM tool of their choice – currently they use their patron website in 'admin' mode. This can be extended to leverage the data captured and accessible through the NextContact API.

No formal CRM system is being included in this proposal – there will be work on the part of the customer if they desire to integrate their website/CRM capabilities with these APIs.

2.3.2 Central System Software Modules

The Cloud-based system is comprised of a variety of central system software modules, including of the following core NextCity components:

- NextFare
- NextInfo
- NextLedger
- Cubic Payment Application 3 (CPA)
- Cloud Infrastructure
- Device Configuration and Integration with Cloud Services

Cubic provides a set of common SOAP APIs and standard integration tools through our central system to provide seamless integrations between the Cubic central system and DTPW's related systems and tools. This architecture ensures DTPW's systems and Cubic environment can be interfaced using standard and supportable methodologies that require no customization and provide ongoing support through future upgrades.

2.3.2.1 NextFare

NextFare, Cubic's enterprise revenue management system, is used by more than a dozen major transit properties around the world for contactless smart card payment. Built around a common suite of software products and a central system, NextFare ties together multi-modal transport including commuter rail, light rail, subway, bus, ferry, bicycles and parking into integrated systems that employ a single means of fare payment, and we see it in action every day in many of the world's busiest systems including Baltimore, Brisbane, Atlanta, Miami, Vancouver, New York/New Jersey, Chicago, Los Angeles and others. Please see a complete list in Table 2-1.

Table 2-1. Current NextFare Systems

Transit Agencies	System
USA:	
Port Authority Transit Corporation (PATCO)	NextFare/NextAccount™
Port Authority Trans-Hudson (DTPW)	NextFare
Washington Metropolitan Area Transit Authority (WMATA) + 16 Regional Operators	NextFare
Miami-Dade Transit (DTPW), South Florida Regional Transit Authority (SFRTA)	NextFare
Metropolitan Atlanta Rapid Transit Authority (MARTA) + 5 Regional Operators	NextFare
Laredo	NextFare
Chicago Transit Authority (CTA)	NextFare 7/NextAccount
New Jersey Transit (NJ)	NextFare 7
Metro Transit (Minneapolis)	NextFare
San Francisco Municipal Transportation Agency (SFMTA)	NextFare
Los Angeles County Metropolitan Transportation Authority (LACMTA) + 14 Regional Operators	NextFare
Van Nuys FlyAway	NextFare
San Diego Association of Governments (SANDAG)	NextFare
Canada:	
Edmonton	NextFare
Vancouver	NextFare 7
Europe:	
Sweden (6 Counties)	NextFare
Modena (Italy)	Legacy/NextFare
Australia:	
Southeast Queensland (Brisbane)	NextFare

NextFare is primarily deployed in systems that have closed loop card based payment systems, and works seamlessly with other NextCity modules. The upgrade from the 4x series of NextFare to the 7x version of NextFare will provide the agency with significant improvements in functionality, including a smoother transition to newer versions of NextFare over time, improved autoload management capabilities, additional integrations to third-party tools and devices, and prebuilt links to other Cubic fare modules. NextFare 7 provides a better foundation for the DTPW's independent environment, with easier tools for self-service of fare policy and card management.

DTPWs current issues with NextFare 4.26 have been resolved in the later versions. Issues such as: periodic NextFare GUI errors, NextFare GUI slowness due to load balancer issues, problems sorting and searching configurations have all been improved upon. Furthermore with the system upgrade, system monitoring and overall health will become transparent with cloud-based monitoring tools and the NIS Dashboard implementation.

In addition to providing processing of closed loop contactless smartcard transactions, NextFare performs many system management functions that are required to facilitate the cloud-based system, including:

- **Access Control:** Access to the system and fare collection devices can be controlled from the Central System.
- **Operational Management:** The AFC system has a number of downloadable parameters to define the operational characteristics of the system. The Operational Management Module controls and manages this variable data and downloadable software.
- **Key Management:** A system has been developed to securely propagate encryption keys to AFC devices.
- **Fraud Detection:** This module has a configurable set of analysis rules that can be applied to all media managed by our system. These rules are rather diverse and are aimed at detecting situations where the card fleet does not behave as expected. For example, transactions from the same bank card showing near concurrent usage at separate locations may indicate a cloned card. Cards with fraudulent activity can be negative listed, reported on, or both.
- **Revenue Management:** Detailed revenue and ridership data is summarized in a variety of ways to ease trend analysis and support financial reconciliation processing.
- **Transit Benefits:** Employers can be set up, so their employees regularly receive autoloads for passes or value on their employee's smart media. Transit benefits can be set up per employer. Each employee can receive a subset of those benefits. Reports have been defined with benefit history and information that could feed an invoice. The transit benefits module within NextFare provides a comprehensive set of APIs for integrations with third parties such as Eden Red or WageWorks should DTPW decide to later to integrate outsourced transit benefits management.
- **Customer Activity Monitoring:** All versions of NextFare provide a GUI for agency personnel to view customer card activity, make changes to the card information, and hotlist cards. In the upgraded NextFare 7, agencies also can also perform card transfers and replacements.
- **Integrations to Customer Facing Website:** NextFare 7 now comes prebuilt with links to the Customer facing websites for card ordering, card replacement, pass history, transaction history, password resets, and other standard agency and customer functions.
- **Limited Use Media Support:** NextFare 7 now comes with native support for LUM, allowing DTPW to deploy changes to the existing device fleet to accept LUM for scenarios such as special events or institutional program support.

2.3.2.1.1 NCS 7 Software

In addition to running on current supported versions of OS, Oracle® and WebLogic®, NCS 7 is the latest version of NCS and is the version being deployed for any card-based customers needing new or updated NCS software. It provides a foundation for introducing a variety of new system capabilities such as support for account-based processing, acceptance of Open Payment bankcards, and mobile ticketing solutions, should DTPW/SFRTA choose to go in any of these directions.

NCS 7 has been updated with new features and many performance and usability improvements. Key features useful to DTPW/SFRTA include:

- **Updated middleware and browser support:**
  - Oracle 12c
  - WebLogic 12.1.3
  - Microsoft Internet Explorer v8-11, Firefox 3.6+, Google Chrome 18+ and Safari 5.1+
- **Optimizations for deployment in PCI-compliant environments, including support for the PA-DSS certified CPA**
- **Improved monitoring and management:**
  - Enhanced API security and full request/response logging
  - Next Integration Service (NIS) dashboard for back office monitoring (see screenshot below)
  - Near real-time device download monitoring and history
  - File upload history
  - Improved transaction reprocessing
  - Finer control on message security settings
- **NextInfo:**
  - Central data repository, supporting card based (NCS), account-based and mobile systems for unified reporting
  - Can optionally be deployed on a separate server if contention between operational and reporting database access is a concern.
  - SAP Edge BI tools replace Hummingbird:
    - Crystal Reports
    - Web Intelligence
- **Improved Pre-Paid Benefits support:**
  - Support for pre-bill and post-bill of employers
  - Invoicing for Pull (funds automatically drawn from credit card or ACH at time of invoicing)
  - Invoicing for Push (funds are deposited by the employer after receiving the invoice)
  - Support for non-periodic orders to load value and passes to an account.
  - Support for various fees: Admin fee, credit card convenience fee and ACH failure fee
  - Interface for Employer website for enabling employers to manage their own benefits distribution

2.3.2.1.2 NIS Dashboard

The NIS dashboard can be used by DTPW/SFRTA to monitor NCS functionality. This is not intended to replace SolarWinds or other system monitoring tools, but is an additional view into the state of NCS functionality that can be useful to an operational team. The NIS dashboard becomes particularly useful when additional functionality is added to the system such as account-based processing or support for open payment. The following show some examples of the NIS Dashboard running in an environment where Account-Based Processing and Open Payments have both been enabled.

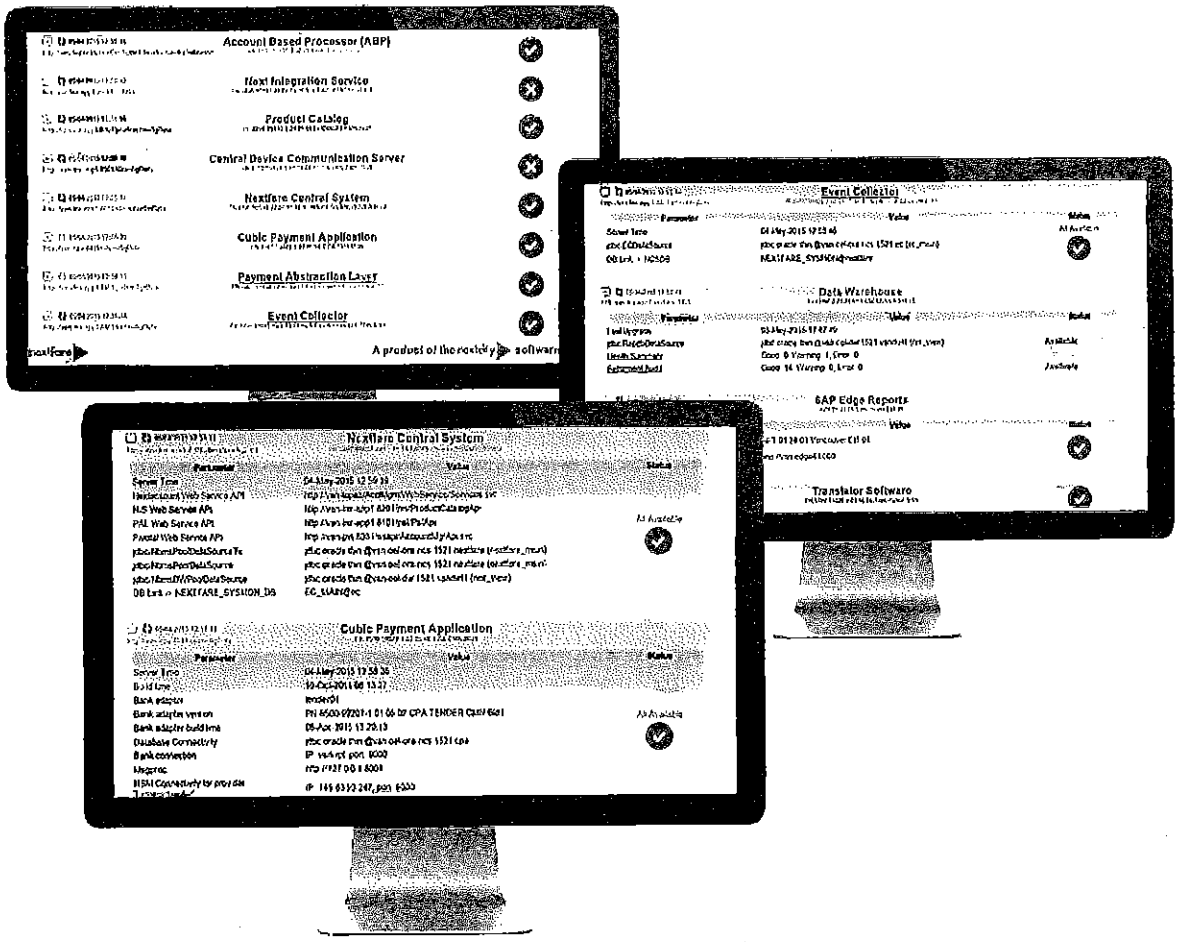


Figure 2-2. NIS Dashboard Examples

2.3.2.2 CPA 3 and PCI

DTPW/SFRTA TVMs currently send credit card payment requests to the IBM payment gateway via CPA 1. The current PA-DSS certified Cubic Payment application replacing CPA 1 is CPA version 3. A new CPA interface to the Elavon bank will be provided so credit card payments can continue to be processed via the Elavon.

CPA 3 is certified under PCI's PA-DSS 3.0 standard, and is listed on the PCI website as suitable for new deployments. This certification requires that CPA be deployed and maintained per the CPA Implementation Guide. In the DTPW/SFRTA system, credit card information for Threshold Autoloads is stored by the Acadaca solution, so DTPW/SFRTA will not be using CPA's tokenization service for card-on-file storage. However CPA will be passing credit card information through from DTPW/SFRTA TVMs to Elavon. Cubic has deployed CPA in numerous environments that have successfully achieved Level I PCI assessment.

While NCS has maintained backwards compatibility with Cubic legacy devices, the CPA 3 must conform to PCI Data Security Standards, resulting in some loss of backwards compatibility with CPA 1. For this reason there will need to be some limited TVM software changes.

In addition to being certified under the current PA-DSS version 3.0 standard, the advantage of upgrading to CPA 3 is that it provides the foundation for a number of options DTPW/SFRTA may want to consider in the future:

1. EMV transaction processes
2. Architecture allows changing acquiring banks without having to recertify CPA
3. Acceptance of Open Payment bankcards for PAYG travel.

2.3.2.3 NextInfo

NextInfo provides the centralized data management and business analysis functionality that will provide DTPW with significant upgrades from the current static Hummingbird based reporting environment. Existing Hummingbird reports are re-deployed using the new toolsets. Built on best-in-class commercial analytics tools, the reporting system consists of:

- **Enterprise Data Warehouse:** NextInfo uses Oracle database technology to implement a scalable data warehouse, capable of handling a minimum of seven years of detail and summary data and data from third-party business critical systems. Archived data kept offsite can be restored within 24 hrs.
- **Real-time Data Integration:** Data from external systems can be integrated using Oracle Golden Gate, CSV flat files, or other tools such as Oracle SQL*Loader.
- **SAP Edge Business Objects™ Solution:** Cubic has a number of proven reports developed in Crystal Reports and Business Objects' Web Intelligence that serve as a foundation for both static and ad hoc reporting.
- **Browsable Data Dictionary:** The NextInfo Browsable Data Dictionary is a browser-based document that provides information on each table and view in the Enterprise Data Warehouse.
- **Transformation Process:** NextInfo applies transformations to operational data in order to normalize it for integrated reporting.

Cubic's Business Intelligence (BI) solution is built upon an industry-standard set of tools: SAP Business Objects Edge Solution. The SAP Edge suite of tools includes Crystal Reports Server and the Business Objects Web Intelligence (BI) tools. The Business Objects tools allow users to readily search and explore business data to gain insight into the operations by providing fact-based, quality information.

The Crystal Reports tool is used to create professional static reports. The reports generated by Crystal Reports are suitable for standard reporting, daily reconciliations, revenue reporting, etc. Crystal Reports server can automatically generate reports (e.g., daily) and distribute them to a select list of business users. The strength of these static reports is their consistency, a quality that is demanded by the typical business user. Users who require the ability to drill down into the data will instead prefer the Web Intelligence tool. Web Intelligence reports use Universes to access the data and provide a business oriented view of the data. This results in users having access directly to the source database allowing for robust ad hoc query and intuitive analysis options.

SAP Edge also includes a dashboard tool which can be used to create interactive dashboards that allow users to quickly visualize complex data. Cubic's NextInfo Business Intelligence solution provides DTPW access to a set of pre-built tools using industry-standard, COTS solutions and a series of standard interfaces to streamline integrations with other DTPW internal tools.

The NextInfo Business Intelligence solution provides the DTPW with an extensive set of tools grouped into reporting categories that include: ridership, revenue, sales, maintenance, and analysis. Cubic's proposal is to provide standardized reports and to ensure that any special custom reports used in the existing system today are modified for the new environment.

2.3.2.4 NextInfo Reports

The NextFare 7 reports are implemented using the SAP Edge tool suite which includes Business Objects Web Intelligence and Crystal Reports. These reports are equivalent to the prior set of standard Hummingbird reports, with some differences such as multiple related Hummingbird reports being merged into a Web Intelligence report.

Converting existing reports to SAP Edge are not included in the proposal, but can be discussed.

2.3.2.4.1 NextInfo Ridership

Customer (Ridership) reports will provide DTPW with insights into customer usage and ridership patterns for the rail system, including ridership totals and averages by facility, device, fare product, time of day and rider classification.

2.3.2.4.2 NextInfo Revenue

Revenue reports provide DTPW with the ability to monitor, review and analyze revenue data produced by the rail system. Detailed summaries and cash breakdowns by facility and payment type are provided. Monitoring, reviewing and analyzing revenue data is an integral part of any business.

2.3.2.4.3 NextInfo Sales

Sales reports provide DTPW with data related to sales that have occurred throughout their system, specifically totals and counts by fare product, by device and by facility. Sales represent revenue for a transit agency.

2.3.2.4.4 NextInfo Maintenance

Maintenance reports provide DTPW with data related to operational performance and maintenance data for system components to include, but not limited to, buses, rail devices, retail subsystem devices, and the central system.

2.3.2.4.5 NextInfo Analysis

Analysis reports provide DTPW with key information related to fraud, hotlisting, and token usage and customer service representative activities. Data provided on the analysis reports allows for monitoring of potential fraudulent activities enabling DTPW to make fraud prevention decisions.

2.3.2.4.6 NextInfo Queries and Reports

The proposed NextInfo solution makes use of an Oracle database that can be queried from database tools such as TOAD® or via the SAP Edge tool suite. The database has tables for information including:

- Device events, including alarms and status changes
- Device configuration for tables, software and hardware
- Fare Tables
- Sales transaction data
- Use transaction data
- Fare media history and state
- Access control
- User login history
- Rail stations

2.3.2.4.7 NextInfo Standard Reporting

Preprogrammed reports/queries have been generated with Crystal Reports and Business Objects Web Intelligence®. These tools provide the means to clone the standard reports to make new revised versions, to revise the existing reports, and create new reports or charts as the need arises. The tool can also export data to other tools, such as Excel® for more complex graphing and charting, should that be necessary.

Reports will be available on non-archived data for historical data analysis, according to DTPW archiving rules. Reports on historical sales data are available spanning fare structure changes.

Standard reports include Crystal Reports and Web Intelligence reports (denoted with a 'C' or 'W' respectively, in the report names):

- CA100 Transit Card Transaction History
- CA102 Device Transaction History
- CA109 Current Transit Card State Summary
- CA110 Fraud Analysis Report
- CA124 Customer CSC Orders
- CA140 Cash Transaction Details
- CA145 Non-Cash Transaction Details
- CA160 Use Transaction details
- CR090 MVM Cash Balance Report
- CR100 MVM Cash on Hand
- WA130 Fare Media Stock Location
- WA215 Threshold Autoload Setups
- WA220 Threshold Autoload Deliveries
- WA230 Threshold Autoload Payments
- WM010 Device Event History
- WP100 Ridership Totals by Time of Day
- WP150 Use Transaction Financial Summary
- WS120 Sales Payment Summary
- WS180 Debit/Credit Details

In addition to these detailed reports, the central system will also provide high level summary information capable of presenting a dashboard showing status and health of the environment showing system availability with drilldown capabilities.

2.3.2.4.8 NextInfo Ad Hoc Reporting

The reporting tool includes wizards available for use in developing ad hoc queries/reports against the database. The ad hoc queries/reports can be viewed prior to being printed. Once defined by the user, the ad hoc query/report definition can be saved and stored for re-use. Ad hoc queries/reports can be run on demand or can be scheduled to run at predefined times and exported to various outputs.

The reporting tool can include data for the central system databases and other DTPW databases that are visible.

2.3.2.5 NextLedger

NextLedger provides Financial Clearing and Settlement features, including:

- Multiple payment types
- Reconciliation
- Settlement
- General Ledger Accounting
- Financial Liability
- Shortfall Calculation
- Exception Handling
- Financial Reporting

Cubic's financial settlement team uses the NextLedger system in Chicago as part of the CTA system obligations. NextLedger's comprehensive financial, clearing, and settlement functions provide next day settlement for CTA, and will similarly be the foundation for the proposed revenue management and settlement services for DTPW.

Figure 2-3 shows the NextLedger module and how it interacts with the other modules within the central system. NextLedger can reconcile cash sales at various retail and ticket vending locations, and sales made via credit at ticket vending machines, websites, Interactive Voice Response (IVR) and mobile websites.

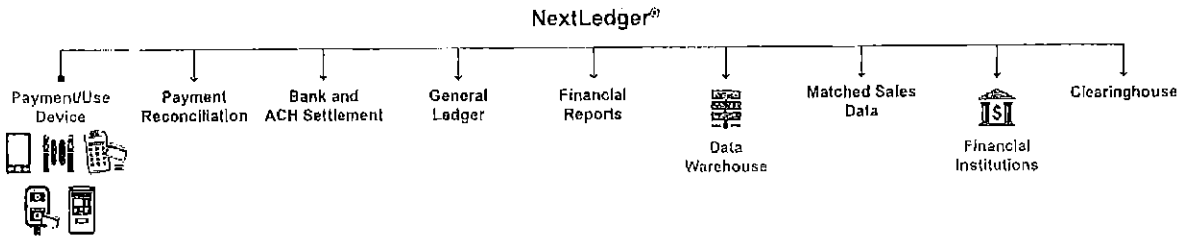


Figure 2-3. NextLedger Overview

NextLedger provides services for:

- Central Clearinghouse (CCH) for reconciling revenue due to transit operators and other system participants – this includes the distribution of funds from the Stored Value Pool to participating agencies, operators and retailers
- Revenue reconciliation and settlement for sales made via threshold autoloads
- Revenue reconciliation and settlement for sales made via Transit benefits (Institutional Web)
- Revenue reconciliation and settlement for sales made via retail Network

- Adjustments made by Customer Service Representatives
- Card replacements

The main components shown in NextLedger are:

- **Financial Reconciliation Manager (FRM):** This module is a TOMCAT based Java application responsible for summarizing payment details and posting the results to Coda (see below). It interfaces with Coda via an open architecture framework using XMLi APIs. FRM supports credit, ACH and cash payments and interfaces to external financial institutions to process credit cards and receive merchant files. It interfaces to acquiring banks to import bank statements to support general ledger reconciliation.
- **End-Of-Day (EOD) and Real-Time Data Processing Procedures in Data Warehouse**
- **CCH Rules Engine:** CCH is a database driven rules engine that performs clearing functions on transactional data. CCH is configured with pre-defined Business Rules. Each business rule can support a number of rules and parameters, such as Accounts Transaction Categories, Categorization Rules and Apportionment Rules. Transaction data is fed into the CCH for clearing. Transaction data includes Sales (sale transactions, Pay-As-You-Go [PAYG] sale and orders, Uses (PAYG use, other uses), Invoices (retailers and Transit Benefit employers), Adjustments (CSR adjustments), Refunds, Replacements, and Legacy Migration. As the transactions are processed, CCH performs the following:
  - Associate a category with each transaction
  - Summarize transaction data by category and payment type
  - Apportion summarized amounts between accounts based on apportionment rules
  - Send ledger entries to the Coda general ledger
  - Interfaces with Coda via XMLi API

The CCH module includes a web based GUI to provide complete configuration and management control.

- **SAP Edge Financial Reports:** Financial reports are provided through the SAP Edge toolset to allow full and complete auditability of the system. Financial reports are selectable using a number of date filters. Depending on the nature of the data, Cubic uses a number of different terms for the dates that are used for each report. The terminology we use is:
  - Transit Date: When the transaction occurred, typically at a device or at an application like website. Based on the transit agency's definition of start of the transit day (e.g., 3:00:00 am - 2:59:59 am).
  - Posting Date: When the transaction was successfully processed in the source application, e.g., NCS, ABP, Pivotal, etc.
  - Settlement Date: When the transaction was ready to be cleared through CCH. In the event that CCH process is delayed, the Settlement date will still reflect when the date when the clearing should have occurred.

In addition to the standard reports as part of NextInfo, numerous additional financial reports are provided that give the operations and finance team a full picture of the financial status of the system. These are listed below:

- CO110 Passenger Order Details
- WO430 Refunds
- WO150 CSR Customer Adjustments
- WO110 Passenger Order Summary by Product
- CC400 Credit Transaction vs. Reconciliation

- CR300 Credit Payment Reconciliation
- CC400 Credit Transaction vs. Reconciliation
- CR300 Credit Payment Reconciliation
- CC405 Direct Debit Transaction vs. Reconciliation (for ACH)
- CR310 Direct Debit Summary
- CR190 Point-of-Sale Cash Balance
- CR460 Point-of-Sale Bulk Cash Reconciliation
- CR111 Stored Value Liability Details (for CSC)
- CR117 CSC Pass Liability
- WC100 Clearinghouse Rule Sets
- WC231 Clearinghouse Category transaction History by Transaction Type
- WC210 Clearinghouse Apportionment Postings
- WC410 FRM Summary Postings
- CC300 Retail Network Sales/Commission by Week
- WC910 PPB Customers Invoice Report

2.3.2.5.1 Cubic Payment Application Module

The CPA encapsulates all of the credit processing routines and the financial network interfaces. This insulation facilitates PCI-DSS certification. The other Central System components use an API and tokenization to refer to credit transactions, so that card numbers are hidden from the rest of the system.

CPA includes the hardware and software needed to implement a credit processing and reconciliation service based on the CPA. CPA is a Payment Application-Data Security Standard (PA-DSS) certified application to handle debit (if required) and credit payments. CPA is currently listed on the Visa® Web site as a Payment Application Best Practices (PABP) compliant application, which can be found at the following address:
https://www.pcisecuritystandards.org/approved_companies_providers/vpa_agreement.php

Cubic's solution is PABP and PCI compliant.

CPA has also been accepted as being compliant with the Payment Card Industry Security Standards Council (PCISSC), PA-DSS, and is listed on the PCISSC website of approved applications at the following address:
https://www.pcisecuritystandards.org/security_standards/vpa/vpa_approval_list.html.

CPA has been specifically developed to support plug-in adapters for financial clearing institutions request/response interface. This allows new adapters to be developed and installed without the need to recertify the CPA for PA-DSS compliance. CPA is capable of communicating with multiple clearinghouses at the same time with multiple plug-in adapters. CPA is currently being used by a number of transit authorities including Port Authority Transit Corporation (PATCO), San Francisco (SFMTA), Chicago (CTA), Atlanta (MARTA) and Miami-Dade Transit (DTPW), as well as being scheduled for deployment by Transport for London (TfL) as part of the London Open Payment system. As part of this system deployment, Cubic will develop a plug in adaptor for DTPW's payment processor, Bank of America, should DTPW wish to retain that service.

All credit card information is stored in a CPA private schema, which is encrypted using a SafeNet or Thales security appliance supporting hardware based encryption, in accordance with the PCI-DSS. Users with administrative access to CPA can see full credit card numbers, but all others can only see masked credit card numbers, where all but the last four digits are asterisked out. This approach supports separation of duties between the database administrator and the security administrator, ensuring that no single person has unrestricted access to both the encrypted data and the keys needed to decrypt it.

The system will also be provided with all of the necessary software and hardware for encrypting and transmitting data to the selected clearing institution. This solution is compliant with all of the appropriate banking standards including American Bankers Association (ABA), International Standards Organization/ International Electrotechnical Commission (ISO/IEC) and the Federal "E" and "Z" Regulations. As noted above, the CPA solution has been PA-DSS certified, and will therefore help DTPW achieve PCI-DSS compliance for the system and operation as a whole.

Cubic is in discussions with several credit card processing networks. All are aware of the need to provide high-speed authorization services to support the use of contactless bank cards at the point of use. At the time of this writing, credit card processing networks have not committed to providing a guaranteed solution to meet the fast processing times of transit. When methods for high speed authorization have been finalized, Cubic will propose to integrate with these high-speed authorization services. In the meantime Cubic's multi-tiered approach provides a solution that balances the requirements for fast transaction processing and securing payment for all transactions.

2.3.2.6 Cloud Infrastructure

The central system in the Cloud Infrastructure is designed to be available for 24-hour/7-day operation and to achieve a rigorous 99.9% uptime. Over the years Cubic has learned from real-time operation in authorities around the world. Our cloud design and services support have been optimized to meet strict availability requirements in a number of cities including London, Brisbane, Los Angeles, Chicago, and Atlanta. The system is designed to provide forms of redundancy, ensuring availability for the customer and for the agency. Various automated tools are used to monitor the devices and the central system, allowing maintenance personnel and system operators to proactively react to any device or system problems.

Cubic proposes to host the Cloud Platform using proven partners like Amazon Web Services and Microsoft Azure Cloud Services. This cloud hosting solution enables the customization of the environment to meet stringent requirements. The Cloud Hosting Infrastructure allows for the following:

- **Augment and Move Services to the Cloud:** Cloud service providers helps build, connect, and move services in datacenters to the cloud with comprehensive hybrid cloud solutions.
- **Broad Coverage and Data Sovereignty:** Cloud service providers are available in 89 countries in 40 currencies and offers disaster recovery, improved local performance, and coverage areas located around the globe.
- **Extensive Range of Cloud Solutions:** The cloud services provide offerings tailored for the Cities' technology needs, environment, security constraints, and finances over 15 years of experience in cloud services.
- **Security, Compliance, and Privacy:** The proposed cloud-based solution complies with key industry standards and with data protection and privacy laws generally applicable to Microsoft's provision of a cloud services platform.

The system will also provide a flexible capability to share and store data between all stakeholders, including the delivery of real-time intersection status updates.

The cloud is a natural fit to host the integration service due to the high levels of availability provided, additional security and compliance practices followed and certifications attained by the hosting facilities and infrastructure service provider, and commitment to hosting critical services for large government agencies. Additional benefits are as follows:

- **Encryption and Key Management:** Manage unique dedicated keys for this environment.
- **Network Segregation:** All traffic to VMs is blocked unless expressly authorized.
- **Threat Management:** Inherent protection against malware and DDoS threats.
- **Penetration Testing:** Microsoft and Cubic perform regular penetration tests.
- **Logging and Reporting:** Performance information logged and available for analytics.
- **Isolation:** Isolated from public cloud. Only tenants are qualified government organizations.

Beyond leveraging the cloud service platform for infrastructure services as a host, Cubic provides real time monitoring and alerting on status and performance of the cloud servers, applications, network, and connectivity to DTPW local infrastructure with tight integration of monitoring systems with Cubic Service Desk tools and processes.

As part of Cubic's Cloud Infrastructure, DTPW no longer bears the burden of equipment acquisition, provisioning, and maintenance. Instead, Cubic provides all hardware and software maintenance delivered through the Azure or AWS cloud.

2.3.2.6.1 Fault Tolerance

The central system is a mission critical system designed to meet 99.9% availability requirements for card based solutions.

Within the cloud environment, Cubic deploys local devices with an eye toward eliminating any single-point-of-failure. Where appropriate; devices, applications and databases are configured in clusters-including each application and database. In addition, Cubic relies upon redundant cloud storage configured to have mirrored copies of all application server images and the data for each application server.

2.3.2.6.2 Server Virtualization

Cubic uses industry-standard server virtualization platforms to provide availability, efficiency, and flexibility for application workloads. Our hosted architecture leverages the strengths of virtualization to harden the infrastructure and provide a higher level of resiliency.

Virtual server templates are utilized to allow rapid provisioning of additional application servers, increasing the efficiency of additional workload deployments. Clusters of multiple virtual server hosts, deployed in N+1 configurations for capacity management, host application servers. This configuration allows for workloads to be automatically restarted on functional hosts in the event of a host failure.

Cluster rules are enabled to distribute workloads effectively across all hosts in the cluster, distributing virtual servers that host the same application across different physical hosts, allowing for physical host failures while providing availability of applications on other functional hosts.

In addition, highly-trained administrators monitor the placement of workloads to verify efficient operation, and periodically manually migrate workloads to minimize system risks or in preparation for system maintenance. These migrations could include the movement of workloads from one host to another within a site, from a host in one instance to a host in another instance, or form one storage system to another storage system. This orchestrated movement of workloads will allow system maintenance without affecting application operation, degrading application protection levels, or introducing additional risk of system failure.

Cubic's system architecture provides for multiple instances of each service and application and allows further scale horizontally while presenting each service as single function through virtual IPs. Though there is one setting/URL to get to a service or API there could be multiple systems or applications that can respond to that request.

2.3.2.6.3 Testing of the Cloud Solution

Cubic periodically tests the Cloud Services to prove its ability to meet the uptime objectives. Ongoing testing verifies that components and connections in the system and ensure that the Cloud Platform performs with a failure in a single component. Since some of the components are discrete devices (such as load balancers, network switches, and individual servers) and other components are resident on virtual servers, each type of failure will be tested on an individual basis. The types of failures that will be demonstrated include:

- **Application Failure:** The failure of an application node within the environment.
- **Database Failure:** The failure of a database node.

Tests are performed independently within each site and across sites to validate performance of the system. During testing, Cubic simulates all of the types of failures listed and verifies the system's performance to the specifications.

2.3.2.6.4 Security and PCI

Cubic's Cloud Infrastructure is designed, built, and operated in accordance with a comprehensive security management framework which is aligned with the ISO 27001 Information Security Management System (ISMS) requirements. Cubic's ISMS includes the policies, standards, guidelines, and procedures that are utilized to implement administrative, physical, and technical controls. The controls have been designed to support regulatory requirements such as the PCI-DSS, legal requirements regarding privacy, and general security best practices. The ISMS is periodically updated to incorporate changes to the threat environment and new or updated contractual obligations.

While PCI and privacy are the primary regulatory and contractual factors that influence the security controls that have been implemented within the fare collection environment, implementation of those controls is not limited to only systems that process personal information. Cubic operates and maintains all systems and the infrastructure in accordance with the same set of strict ISMS controls, regardless of whether or not an individual system stores, processes, or transmits cardholder data or personally identifiable information (PII).

2.3.2.6.5 PCI-DSS and PA-DSS

PCI-DSS provides a baseline of technical and operational requirements designed to protect cardholder data. PCI-DSS applies to all entities involved in payment card processing—including merchants, processors, acquirers, issuers, and service providers, as well as all other entities that store, process or transmit cardholder data. PCI-DSS comprises a minimum set of requirements for protecting cardholder data, and may be enhanced by additional controls and practices to further mitigate risks.

The PA-DSS applies to applications which perform credit card authorization and settlement functions. The use of PA-DSS applications support PCI-DSS compliance and each version of CPA have been validated as PA-DSS compliant.

Table 2-2 is a high-level overview of the 12 PCI-DSS requirements and how Cubic addresses those requirements.

Table 2-2, PCI Data Security Standard-High Level Overview

Description	Requirement	Cubic Actions
Build and maintain a secure network	1. Install and maintain a firewall configuration to protect cardholder data	Multiple layers of firewalls are utilized to control and restrict traffic from untrusted networks and to provide defense in depth within the environment.
	2. Do not use vendor-supplied defaults for system passwords and other security parameters	Center for Internet Security (CIS) security benchmarks and vendor best practices, are utilized to harden operating systems, databases, network devices, and applications.
Protect cardholder data	3. Protect stored cardholder data	Sensitive data elements are encrypted within databases using AES-256 bit encryption. Keys are securely managed using hardware security modules. Cubic will only store the minimum amount of data required for operation of the system.
	4. Encrypt transmission of cardholder data across open, public networks	All Internet facing systems utilize SSLv3 and TLSv1 to provide encryption in transit for public web services. Connections to third parties and financial institutions are performed using SSL/TLS, VPN, or point to point private connections.
Maintain a vulnerability management program	5. Use and regularly update antivirus software or programs	Antivirus software is centrally managed with clients utilized on both Windows and Linux systems. Additionally, whitelisting software is utilized on vending machines to prevent malicious software from executing.

Table 2-2. PCI Data Security Standard-High Level Overview (continued)

Description	Requirement	Cubic Actions
Maintain a vulnerability management program	6. Develop and maintain secure systems and applications	Vulnerability mitigation and vendor patches are implemented on a monthly basis. Software is developed in accordance with secure coding and development processes. Web application firewalls and DDoS protections services are utilized to provide an additional layer of security for Internet facing web-services.
Implement strong access control measures	7. Restrict access to cardholder data by business need to know	Role based access profiles are used to provide access to all systems and applications. Access is provisioned to individuals based on least privilege with the minimum rights required to perform their job responsibilities.
	8. Assign a unique ID to each person with computer access	All users are issued unique, individual credentials for access to all systems and applications.
Implement strong access control measures	9. Restrict physical access to cardholder data	Back office systems components are hosted in highly secure facilities.
Regularly monitor and test networks	10 Track and monitor all access to network resources and cardholder data	The Cubic security and networks operations teams monitor and analyze activities from all systems using QRadar security information and event management (SIEM) system, Tripwire file integrity monitoring solution, and Solarwinds.
	11. Regularly test security systems and processes.	IDS/IPS is utilized at both the external network perimeter and also between internal network segments. Internal and external vulnerability scanning is performed on a monthly basis and high-level vulnerabilities mitigated within 30 days. Internal and external penetration testing is conducted annually and performed by third-party security companies.
Maintain an information security policy	12. Maintain a policy that addresses information security for all personnel.	A comprehensive set of security policies, standards, guidelines and procedures are in place to support the Cubic ISMS, which includes all PCI requirements. Cubic personnel are provided with annual security awareness training.

2.3.2.6.6 Privacy

Cubic is committed to maintaining the privacy of all PII belonging to your customers. Technical security controls and vulnerability management processes are in place to ensure a high-level of security to protect against malicious attacks and from unintentional errors. While technical security controls and processes provide the foundation for effective privacy protection, Cubic also provides personnel with training on handling requirements for PII and restricts access to PII system and applications to only those personnel that require access for customer service, troubleshooting, and administrative purposes. All personnel who handle PII or manage fare collection systems undergo background screening checks and are required to read and sign privacy policies prior to obtaining system access.

Cubic only utilizes PII for the purposes for which it is collected in order to manage transit accounts for registered individuals. Privacy policies provided by DTPW would be thoroughly reviewed, strictly enforced, and incorporated into the Cubic ISMS.

2.3.2.6.7 Data Backup and Archive

Cubic recognizes the importance of the data within the Cloud Platform being offered provides a great deal of security for the database. After data is written to disk, a snapshot of the volume is taken for data backup. When periodic snapshots of a volume are captured, the snapshots are incremental so only the blocks on the device that have changed after the last snapshot are saved in the new snapshot. Even though snapshots are saved incrementally, only the most recent snapshot is required to restore the volume.

Cubic has developed and tested backup and restore policies to ensure that all the data within the Cloud Infrastructure is correctly backed up to disk and electronically to an offsite data backup facility. These tests are periodically performed to ensure the system continues to meet requirements, including performing a recovery from the offsite backup facility.

2.3.2.6.8 DTPW Access to Central System

Access to the Cloud Service by DTPW staff is manifested in the following ways:

- **Via our NextInfo™ database and toolset that will give DTPW access to a tokenized view of all transaction and full device status data thus creating no PCI exposure.** Staff will have access to a set of reporting tools and databases reflecting current and historical transaction data.
- **NextInfo will provide revenue, ridership and device data needed to interface with DTPW or other agency back office systems.** These data extracts can be created either by DTPW staff via the toolset provided or Cubic operations staff.
- **Exposing pre-configured and Ad Hoc views of the Network status from our network monitoring toolset.** Cubic understands that DTPW will continue performing local network infrastructure maintenance and the monitoring plan requires ready access to the state of the network down to every installed vending device.

Agreed views of device detail and summary status information as compiled from ServiceNow system databases much of which is presented in a dashboard fashion.

2.3.2.6.9 System Administration

Cubic utilizes a blend of monitoring services within the Cubic Cloud Platform. Both AWS and Microsoft Azure offer native cloud resource monitoring for CPU, memory, network and disk utilization.

In addition to native tools, monitoring tools like SolarWinds® (or other equivalent network monitoring tools) deliver agentless application and server monitoring software providing monitoring, alerting, reporting, and server management. Application and server monitoring software leverages out-of-the-box application monitors for more than 150 applications, enabling you to keep a close eye on virtually all elements of your critical business applications.

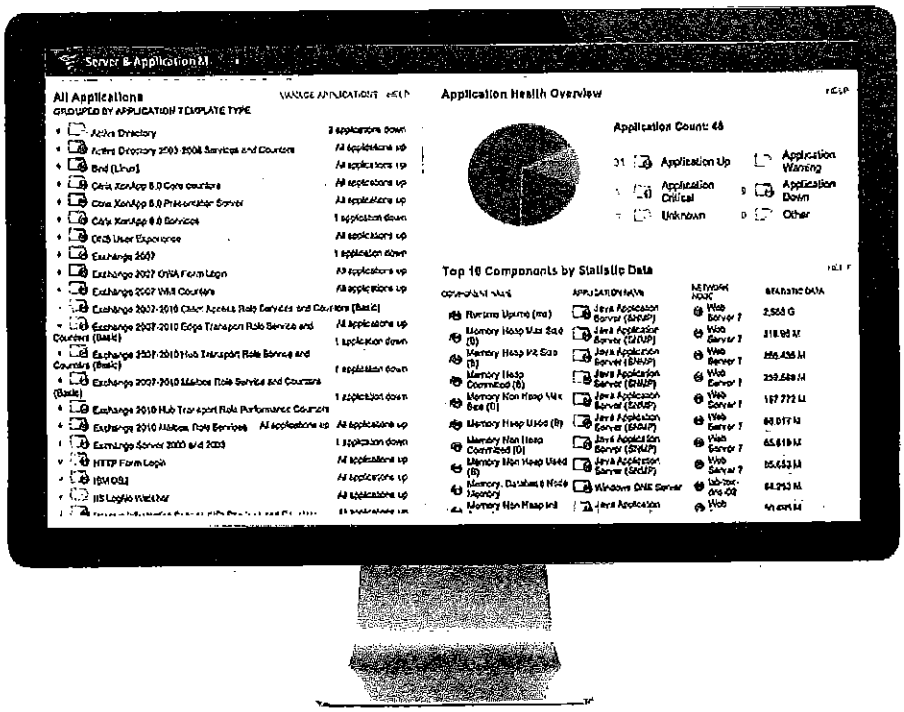


Figure 2-4, General System Administration Diagram

The Cubic Cloud Platform includes significant network management capabilities, including but not limited to network performance monitoring, traffic analysis, network bandwidth analysis, network quality monitoring, device tracking, IP control, network configuration, and security management. See Figure 2-4 above and 2-5 below.

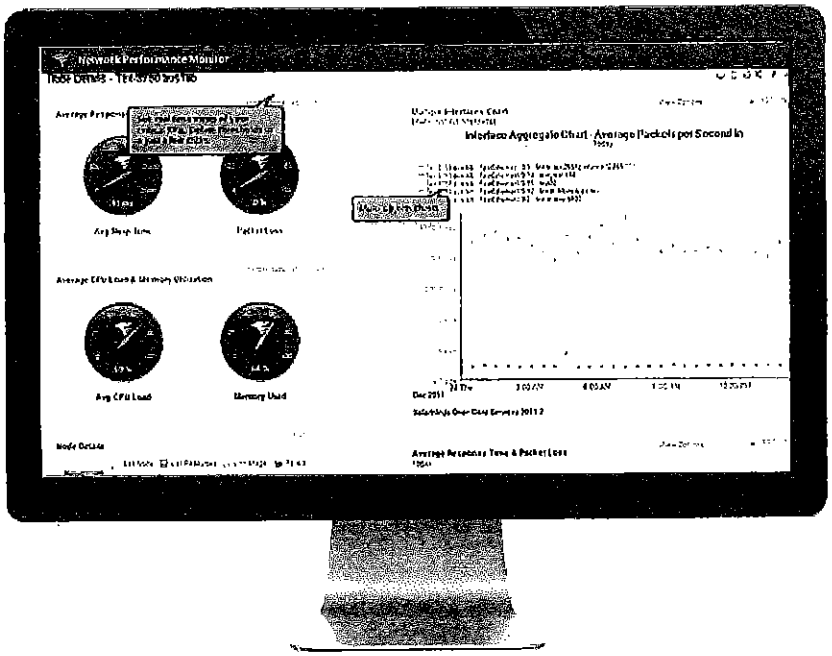


Figure 2-5. Network Performance Monitoring

2.3.2.6.10 Device Monitoring

The Automated Fare Collection Monitoring System (AFCMS) monitors the network of AFC devices for incidents. AFC devices transmit events to the central server in real-time. These events are stored in the AFCMS database and are used to generate alarms. AFCMS in the Cubic Cloud Platform replaces the legacy HP OpenView approach to device monitoring.

The upgraded AFCMS functionality includes alarms created based on which set of AFC devices sent the event, a set of event types, how long an event has been triggered, and how many occurrences of an event there have been within a period of time. The screens will have a graphical mapping of all devices to allow for quick views of the health and status of the environment.

The AFCMS client program is used to display alarm information from the system. It also handles configuration of the system. The client program is secured by username and password. Users are assigned to security groups. The configuration of a security group specifies which parts of the system a user has access to.

The station manager is a view onto the AFCMS and provides local control for the devices at a station. It is a web-based application operating on a standard browser. It provides authorized personnel at the station to remotely control the operational characteristics of the station devices.

MDT will have access to status monitoring through AFCMS. Devices like the TVMs and Faregates report their status to the AFCMS environment periodically tough their connection to the back office.

Various devices generate their own unique status messages, such as coin hopper low, or ticket jam. The AFCMS is an integration of a number of independently developed systems, and a set of COTs monitoring tools that collects inputs from multiple sources to provide a unified feed to the NextInfo environment.

2.3.2.6.11 Transaction Records

The device stores the following types of transaction records and uploads them periodically to the back office:

- All completed transactions
- All invalid transactions

Transaction records are stored in such a way that they will include date, time, location (per the GPS feed where applicable), vehicle and/or entry device number, operator ID if applicable, and other specified data with each transaction that takes place. All transaction and event records are serialized and uniquely identified and carry all the necessary information to fully report on and track all the activities of the device.

Both revenue summary counts and transaction summary counts are also maintained by the device and uploaded to the back office.

2.3.2.7 System Enhancements

With this package, Cubic proposes to make changes within the existing infrastructure to connect services to the cloud for all device management, transaction processing, credit transactions, autoloads, and other central system functions.

All devices will be connected via the DTPW Ethernet WAN and routed through the firewall via secured VPN to the Cubic Cloud Infrastructure. Servers, services, and back office applications will be monitored through Cubic's App monitor and SolarWinds for heartbeat, health, and status.

All devices will be thoroughly tested for maintenance of all existing features and functions preserved into the cloud environment. Additionally, all devices will be tested to ensure they continue to meet all performance requirements.

2.4 SOGR Dependency - TVM Kit, Gate Kit, and Farebox Kit

The ongoing SOGR work is designed to provide asset refresh of existing AFC equipment, support for the current back office environment, and forward support for systems and feature set expansion as described in the system upgrade, the EMV Option, and in support of bar code validation at faregates in the Cloud Core. While completion of this work is not strictly required to move forward with the Cloud Core, new features and functions described in the options and for bar code processing will require their completion.

2.4.1 DTPW Device Upgrades

Cubic has proposed a suite of state of good repair upgrades to extend the life of the DTPW infrastructure investment and to support new features and functions moving forward.

2.4.1.1 Ticket Vending Machines

2.4.1.1.1 Hardware Upgrades

The TVM will be upgraded to replace end of life components:

- Single Board Computer (SBC) - The existing SBC will be replaced by a Commercial-off-the-Shelf (COTS) SBC. The new SBC will interface with existing serial devices.

- The SBC will run an updated Windows operating system, version to be determined based on Project timing to provide the most updated version Cubic is offering.
- The existing PIN Pads and DIP Reader will be replaced by EMV compliant PIN Pad and DIP Reader from Ingenico.
- The existing TVMs have a mix of Tri-Reader® 2 (TR2) and TR3 for processing Contactless Smart Cards (CSCs). The TR2 readers will be upgraded to TR3.
- As needed, the TVMs may be updated to newer bill handling units, which could include the functionality of bill recycling with an additional change notice for the TVM software change.
- The refresh of internal TVM cables, such as replacement of the cracking low smoke cables will be ordered separately on an as needed per TVM basis.

2.4.1.1.2 Software Upgrades

The TVM software will be upgraded to interface with various new hardware components and operating system:

- Execute on new hardware and OS.
- Interface with new Ingenico DIP Reader and PIN Pad.
- Implement EIS changes to send additional EMV related data in debit / credit messages.
- The software will be upgraded to interface with various new hardware components and operating system, namely leveraging the functionality of the more capable TR3, and operating in support of the functionality offered in later phases.

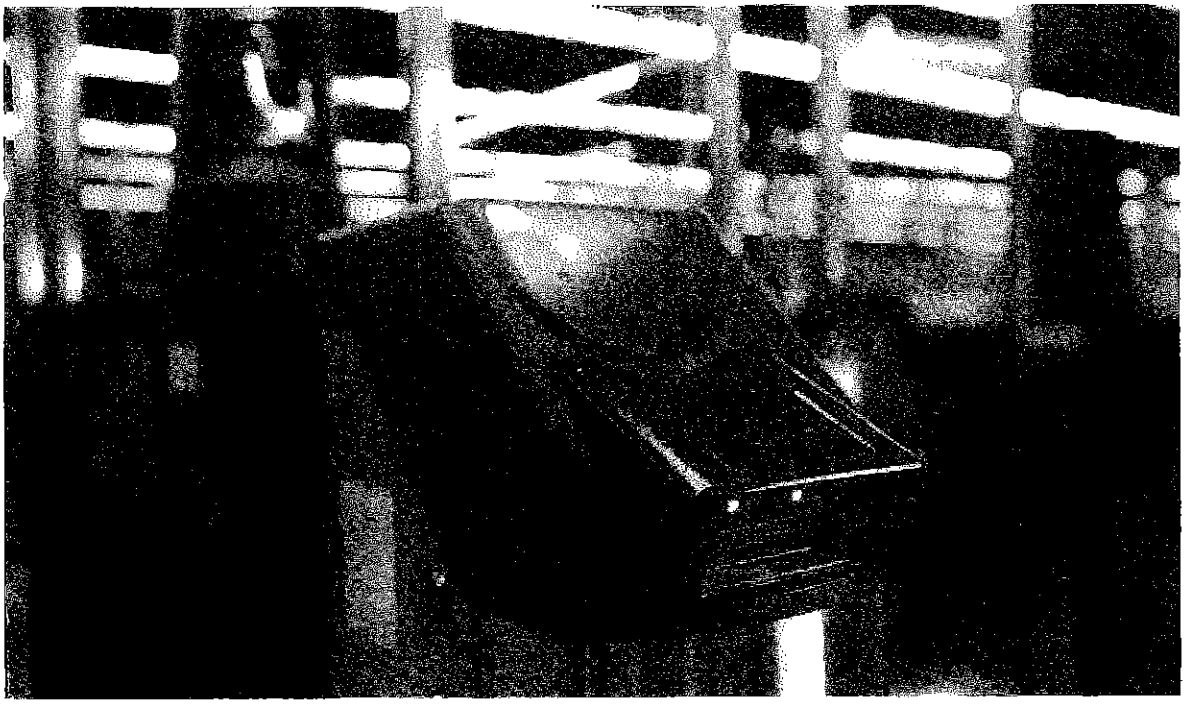
2.4.1.2 Gates

2.4.1.2.1 Hardware Upgrades

The Gates will be upgraded to replace end of life parts:

- Single Board Computer: The existing SBC will be replaced by a COTS SBC. The new SBC will interface with existing serial devices.
- The existing compact flash will be replaced by a Solid State Drive (SSD) to be used with the new SBC.
- The SBC will run an updated Windows operating system, version to be determined based on Project timing to provide the most updated version Cubic is offering.
- The existing Gates have a mix of TR2 and TR3 for processing CSCs. The TR2 readers will be upgraded to TR3.

Select gates (one entry and one exit per array) will be updated to include bar code scanning and validation functionality for mobile tickets.



The E2 Gate Bar Code Reader Kit enhances existing E2 Gates with barcode capability. The kit provides everything necessary to quickly update the gate for dual operation of contactless media alongside barcode media. With Cubic's bar code reader upgrade kit, riders can take advantage of the ease and convenience of barcode on their smart phone or a printed bar code to pass seamlessly through the existing gate array. With the E2 Gate Bar Code Reader Kit, no changes to the gate are necessary as all mounting is already available within the E2 Gate. Additional cables, Ethernet switch, and end bezel are all provided in the kit, and install was designed to be quick and easy.

How it Works

The off-the-shelf Datalogic bar code reader provides outstanding near-field reading, a wide angle field-of-view, and excellent performance on decoding poor or damaged bar codes. The upgrade kit itself is very easy to install. No cross aisle cabling is required. A single technician can easily install the upgrade kit in a matter of minutes. It is as simple as replacing a bezel with the new patron interface. Then assemble the mounting brackets, add an Ethernet switch, route the cables, and the gate is ready.

With the bar code reader installed the patron need only approach the terminal, present their bar code to the bar code reader, and the gate will open. The bar code can be printed on a receipt or presented on a smart phone making the authentication method very versatile. With the presentation method and the split second it take to authenticate the bar code the patron need not break stride as they pass easily through the gate and continue on their way.

2.4.1.2.2 Software Upgrades

The software will be upgraded to interface with various new hardware components and operating system, namely leveraging the functionality of the more capable TR3, the bar code scanner where applicable, and operating in support of the Phased functionality approach.

2.4.1.3 Fareboxes

The GFI Odyssey farebox currently has mounted within it a Tri-Reader 2. This will be upgraded to the TR3 configuration using a new bracket. In addition, the DCU3 software will be upgraded to support real time wireless connectivity via installing a SIM card in the DCU3. The SIM card provided by Cubic and data plan provided by DTPW would enable cellular data transmission on the bus. If any DTPW buses currently have an onboard Wi-Fi system, the DCU3 could utilize this existing network for additional cost savings to DTPW. Once this real time data is enabled on the DCU3's DTPW will be able to take advantage of account based transaction anywhere on the bus route.

2.4.1.4 Multipurpose Point Of Sale

The existing Multipurpose Point of Sale (MPOS) and Compact Point of Sale (CPOS) devices will not be upgraded. Instead of these upgrades, Cubic will provide a tablet based POS application.

2.4.2 SFRTA Device Upgrades

The cloud platform will support the current SFRTA suite of features and functions. A priced proposal will be submitted to SFRTA for asset refresh and systems upgrades consistent with those being made available to DTPW.

2.5 EMV Upgrade Option

Banks are becoming ever more focused on EMV migration. Cubic is proposing an option in which could be completed during the enhancement phase aimed at certifying the TR3s used in DTPWs devices as well as certifying the back office bank connections to approve credit debit transactions via contactless EMV. The Ingenico dip readers installed in the TVMs and the payment terminals used with the tablet based EMV capable payment accepting retail POS units with the SOGR work are capable of contact (chip) EMV transactions, but certification costs have been broken out and placed into this option. Contactless bank card transaction are still possible with the SOGR upgrades, however these transaction are contactless mag strip transactions and not contactless EMV.

2.6 Back Office Upgrades for New Features and Extending the DTPW Mobile App

2.6.1 NextFare Central System Upgrades

The NextFare Central System (NCS) changes upgrade the back office software to the latest supported versions. This upgrade supports extending the initial release of the mobile application with a series of value added features. The upgrade also takes advantage of the cloud infrastructure installed in the initial cloud core package. The enhanced back office system detailed in this option will consist of the following additional back office elements and features running in the existing cloud environment:

- Account-Based Processor (ABP)
- Extended NextWave (NIS) APIs for mobile communication
- CRM
- Clearinghouse/CCH
- Data Warehouse
- Orders/Payments
- PayGo Transactions

Figure 2-6 below illustrates the components of the Back Office environment.

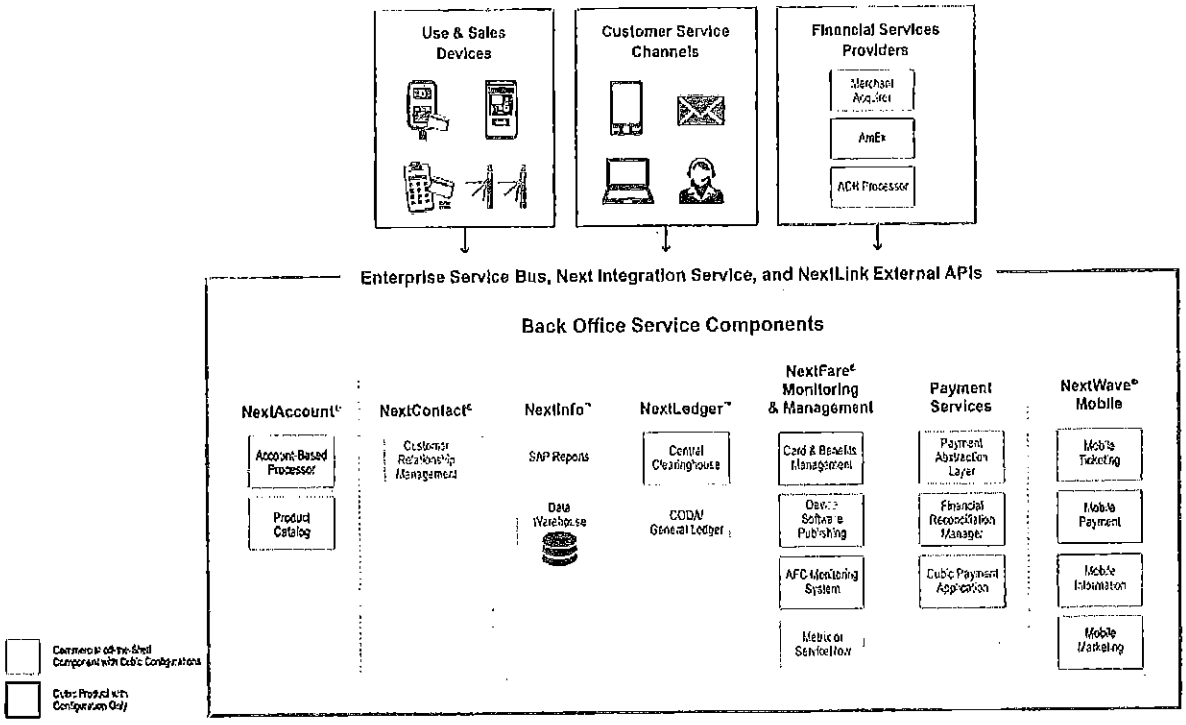


Figure 2-6, NextFare Back Office Components

2.6.1.1 Mobile Enhancements

The initial release of the mobile application will be enhanced over series of releases to include the ability for customers with eligible NFC enabled phones to request/receive a virtual card within their phone and additional features such as integrated trip planning and intelligent content publishing.

Cubic's approach leverages our Cloud Infrastructure as the most expeditious solution for DTPW. Using a cloud environment, Cubic will deliver the cloud-based system's central back office tools quickly and at a cost-effective price for DTPW.

Figure 2-7 below depicts the current configuration of the DTPW system.

Cubic proposes to deploy a cloud-based environment for DTPW's EASY Card infrastructure to both retain and enhance the existing functionality while facilitating a rejuvenated central system for card processing. Cubic's tools provide improvements over the existing environment, including:

- **Meeting DTPW's quality of service expectations:**
  - Providing DTPW's customers with all fare payment options they have today and introducing a new range of value added features and convenience options
  - In the transition to the new environment, each service is tested in the lab and in the field prior to execution of each service's switch-over. Rapid fallback to existing systems will be part of the transition plan for each service thus minimizing any potential customer impacts.
- **Protecting DTPW's revenues and access to information:**
  - New tools for reporting and analysis through the cloud environment.

- Cubic's system will be open to scheduled or unscheduled audits by authorized DTPW and SFRTA personnel.

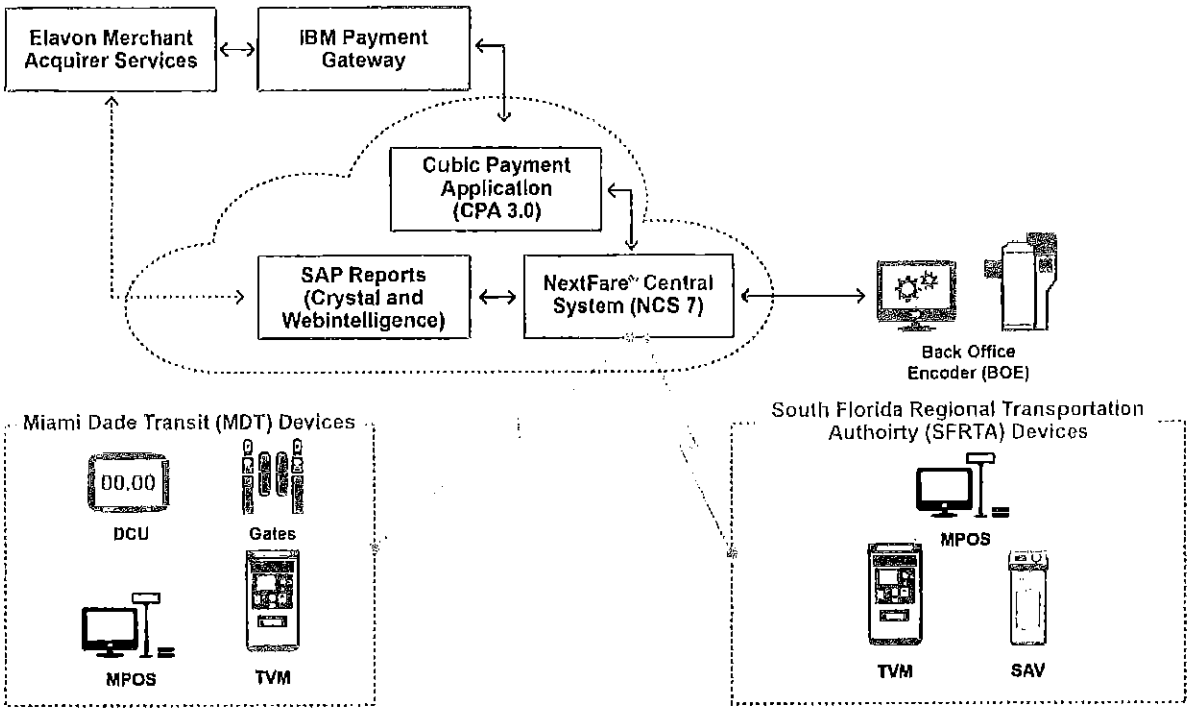


Figure 2-7. Current Configuration of the DTPW System

Upon completion of the system upgrade phase, the additional DTPW and, where applicable, SFRTA fare applications will be supported on the Cubic cloud as depicted below in Figure 2-8.

The advantage of the cloud environment as a solution is that it both facilitates quick-to-market features using a proven infrastructure, while also providing minimal capital investment for DTPW. This solution allows DTPW to upgrade without committing to a long-term investment in infrastructure.

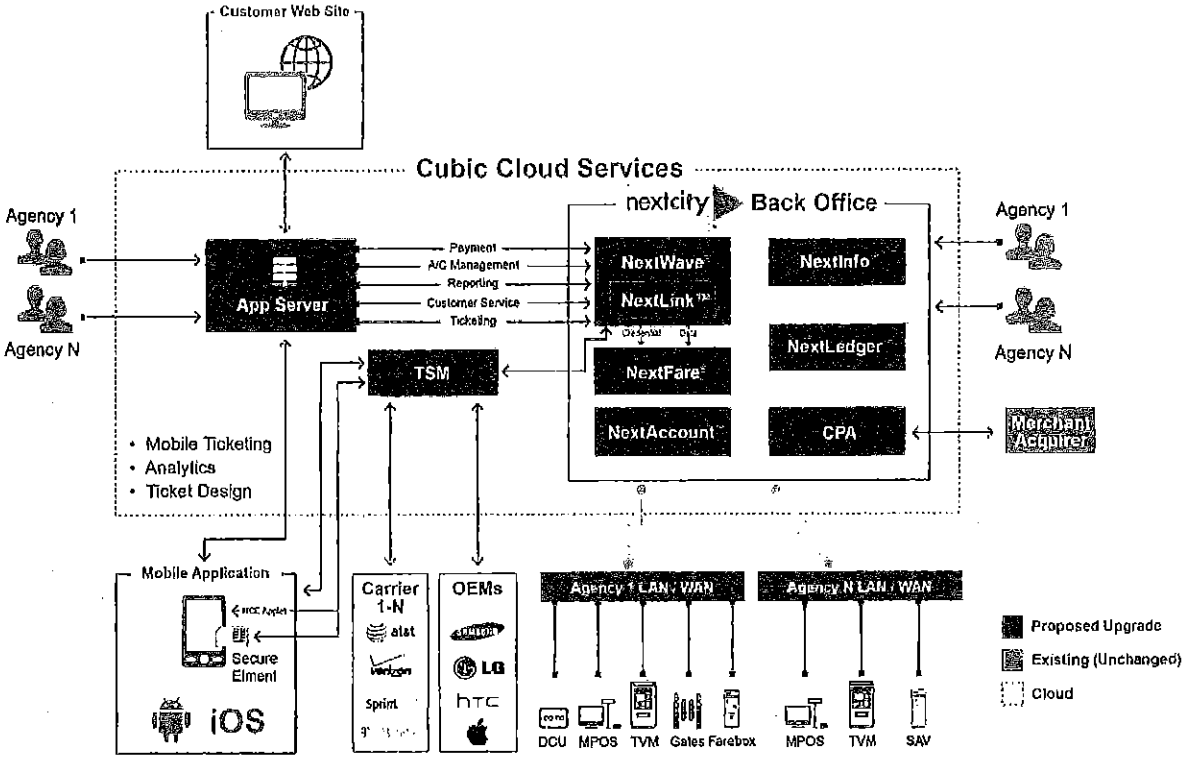


Figure 2-8. Current Configuration of the DTPW System

Cubic's cloud platform will address the key system functionality:

- **Directed and Threshold Autoload of Passes and Value:** All autoloads of passes and value will continue to be managed through the existing DTPW website. In addition to this, patrons will be able to use their mobile app to load value and passes.
- **NextAccount:** These modules provide support for open payment and account-based management, see Figure 2-9. NextAccount's underlying Oracle operational database is integrated with the NextInfo data warehouse for long-term data storage and analytics.
- **NextWave:** NextWave is a mobile gateway platform that provides secure access and a variety of API's in support of mobile applications.
- **NextLink:** The NextLink application is an open systems architecture solution that allows commercially off-the-shelf load and reload devices to be integrated with the fare collection system for the remote updating of contactless transit credentials. By establishing a secure communication path between the contactless media and the remotely hosted fare application, NextLink enables agencies to integrate a broad range of third-party applications such as mobile phones, retail terminals, parking devices and bike share systems by reducing integration complexity and eliminating the need for proprietary technology to manage device security.

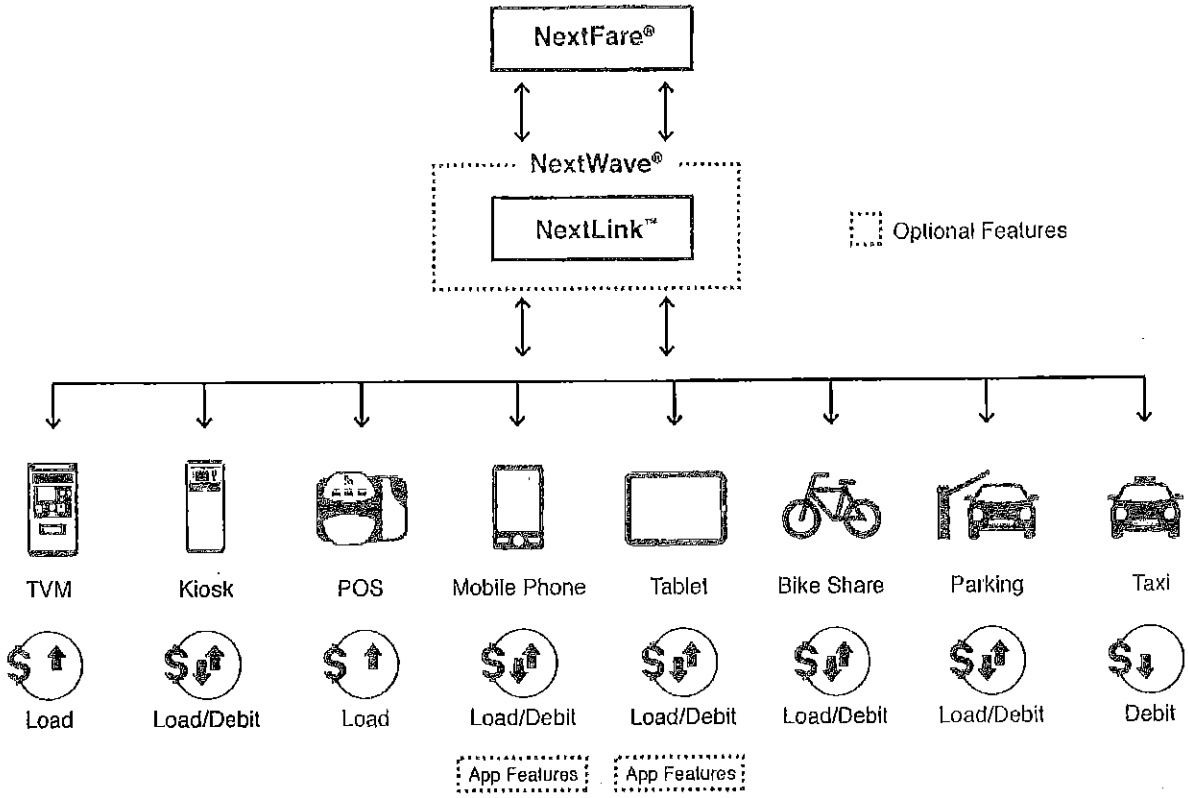


Figure 2-9. Relationship between NextFare and NextLink

- **Customer Support:** DTPW staff or outsource partner can access customer information and card data through intuitive screens available through the upgraded NextFare system
- **Application Programming Interface (API) for Customer Relationship Management (CRM) Tools:** DTPW can access standard information on a customer's history and card data for integration with a local third-party CRM tool.

The Cubic Cloud infrastructure will provide the following enhanced features:

- **PCI Compliance:** Cubic will provide PCI compliance for all elements of the cloud and readiness for the PCI Compliance of devices connected to the Cloud Service using bankcard services for DTPW, ensuring that the migration will not negatively impact the agency's PCI Compliance.
- **Support of Enhanced Fare Policy:** The new central system will allow the support of more complex fare policies including full account-based and distance-based fare structures should that option be exercised
- **Enhanced Reporting and Analytics:** The Cubic Cloud Platform comes with new native reports and analytics using best-in-class tools provided by SAP offering DTPW sophisticated and intuitive tools for analyzing and understanding data.
- **Limited Use Media Support:** Cubic's NextFare 7 delivered through the Cloud infrastructure has native support for LUM, facilitating a lower-cost implementation of LUM for the agency.

The cloud Central System will provide DTPW a seamless transition upgrade DTPW to open payments and products that has been designed, fielded, and proven in a number of Automatic Fare Collection (AFC) environments supporting bus, rail, ferry and intermodal systems. It will provide a Graphical User Interface (GUI) for customer service, payment processing, specification of system parameters, fare policies, access control, configuration management, and securely process credit, debit, and automated clearinghouse payment requests.

The proposed solution includes the hardware and software needed to maintain the commitment to service levels for credit processing and reconciliation and a Payment Application Best Practices (PAPB)-certified application that handles debit and credit payments. Please see Figure 2-10 below for an overview of the Cubic Cloud Infrastructure and the central system modules proposed as part of this project.

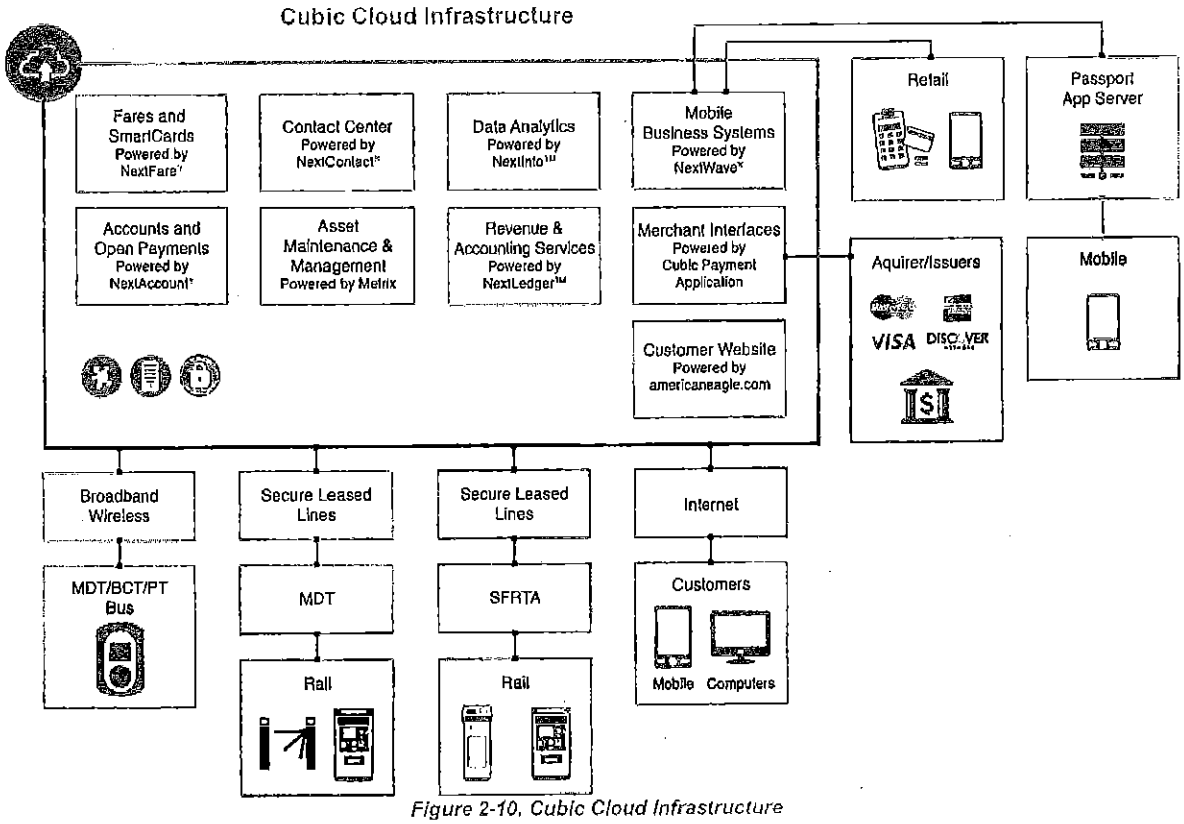


Figure 2-10, Cubic Cloud Infrastructure

The central system will also integrate with best of breed components for subsystems that support and compliment the AFC applications. This includes the Oracle® Database, WebLogic® Application Server, Crystal Reports®, and native image snapshots for backup.

The central system is scalable in its design as a web application running on one or more application servers against one or more database servers. As noted, we have architected the system to allow for future growth by using technologies and practices that allow for flexible scaling on demand.

The central system database is designed to be the repository for operational data, configuration data, and summary data, and includes reports covering subjects such as sales, revenue, maintenance, ridership, pre-paid benefits and autoloads. APIs have been developed to allow third-party applications to be integrated with the hosted central system, including the customer website and the transit benefits website. Integration with the legacy system is accomplished through interfaces relying upon a standard Simple Object Access Protocol (SOAP) API architecture.

Passenger transaction data is available as it arrives to support customer service inquiries and activities. In addition, in an effort to address new security and emergency requirements dictated by today's political climate, near real-time ridership reports are provided to allow operational and security personnel to estimate the number of customers at specific locations or on specific buses at any given time.

The central system is based on a Service Oriented Architecture (SOA). It employs an Enterprise Service Bus for exposing individual component interfaces. In the hosted environment, operational transaction processing is separated from reporting data, so that large, ad hoc queries do not impact operational performance.

The SOA design ensures that interfaces are handled through a standard mechanism without requiring changes to the core system and without impacting system performance if future changes and integrations with interfaced systems are required.

The central system is designed with a modular approach, allowing for the natural separation of functions within the system. The modularity of the system ensures incidental functions like data analysis do not impact the mission-critical transaction processing through the central system. Cubic designed the system architecture to protect the most mission critical application components – Oracle, Product Catalog, and NextFare Integration Server – with the highest level of performance. This segregation also prioritizes performance on the modules with the highest transaction requirements.

The specific performance requirements will be agreed outside of this proposal and, depending on final scope, will include very specific performance criteria that will be self-reported by Cubic on a frequency to be agreed with DTPW. The types of performance criteria may include:

- Central System Availability
- Daily, weekly and monthly Reports delivery performance
- Data accuracy
- Call Center performance to include such Key Performance Indicators (KPIs) as lost calls, hold times and call completion times
- Bankcard transaction times
- CSC reader transaction time performance
- Service response time in many different categories, for example response and repair times, Fare Change updates, system configuration changes
- Response to system upgrades necessitated by regulatory changes

The Cubic system architecture ensures DTPW is not making an investment in hardware. Instead, our active/active, load balanced solution maximizes the infrastructure investment and can grow dynamically as the transaction volumes grow.

Cubic's proposed solution relies upon industry recognized standards and protocols, and leverages best-in-class third-party tools, where appropriate.

The central system will be connected into the existing DTPW through PCI-compliant encrypted links. Firewalls will be configured to allow data exchanges with DTPW systems and the cloud.

The Cubic Cloud Infrastructure is designed for mission-critical performance both from architecture and system administration resources. Upon the completion of the project, DTPW would be capable of functioning as an independent operator without dependence on another regional entity to maintain operations.

2.6.2 Additional System Upgrade Central System Software Modules

The Cloud-based system is comprised of a variety of central system software modules, including of the following core NextCity components to be added or expanded upon with the system upgrade:

- NextAccount
- NextWave extensions for added mobile features
- NextLink extensions for added NFC and V-Card features

Cubic provides a set of common SOAP APIs and standard integration tools through our central system to provide seamless integrations between the Cubic central system and DTPW's related systems and tools. This architecture ensures DTPW's systems and Cubic environment can be interfaced using standard and supportable methodologies that require no customization and provide ongoing support through future upgrades.

2.6.2.1 NextAccount

Cubic is pleased to include its state-of-the-art NextAccount fare processing engine as an integral element of our cloud solution. NextAccount enables the use of secure credentials as fare media tokens including open contactless payment products, secure ID's, and NFC tokens. NextAccount can be used to price open payment Pay as You Go (PAYG) transactions or may be further extended to allow for the full range of fare policy supported by the operator.

We have included full fare PAYG transactions as included in our base proposal herein. An option will be provided so that DTPW may evaluate the cost/benefit of moving all fare products and policy to the account based architecture. It should be noted that this is not a requirement as our architecture will allow account based PAYG transactions to operate seamlessly with the existing EASY Card processing model.

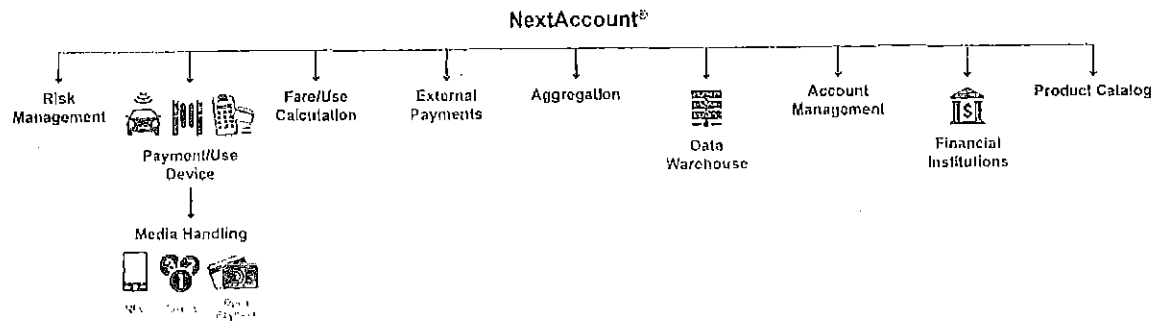


Figure 2-11. Features of NextAccount

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2.6.2.2 NextWave Mobile Business System

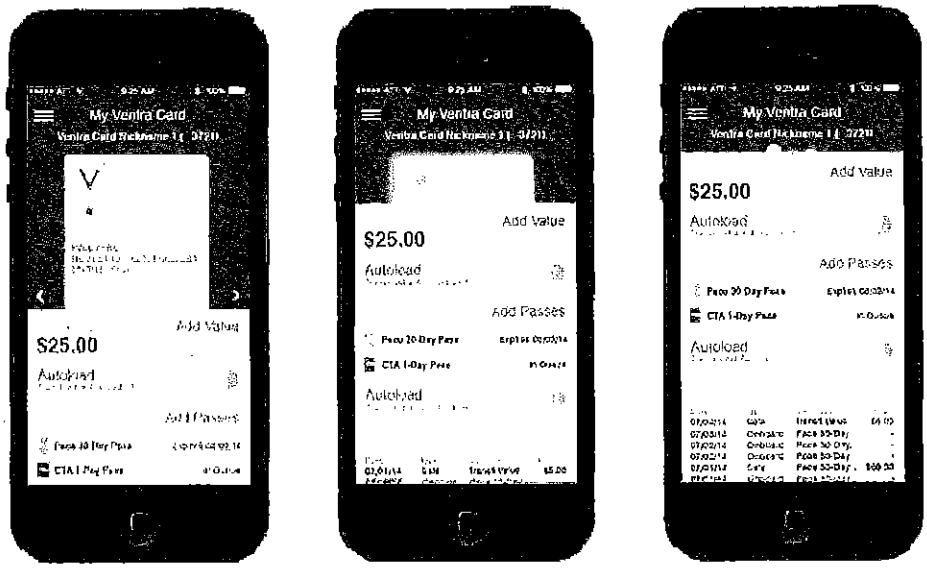
Public transportation customers across a wide array of demographics increasingly rely upon their phones and tablets as constant companions for real time updates, social media, and alerts. As such, your customers have come to expect information about their trips, payments, and choices - on demand and tailored to their preferences.

Cubic's solutions will help you meet your customers' expectations by providing services to enhance your customers' mobile experience through a range of transportation utilities including mobile payments, mobile ticketing, mobile information, and mobile marketing.

These capabilities are enabled by Cubic's NextWave platform. NextWave facilitates the secure interaction of mobile application and mobile application server with the back office account management, fare processing, and payment processing services. The platform also provides a secure interface enabling third-party contactless devices (including NFC enabled smart phones) to read and write to contactless transit cards such as EASY Card. This facility, NextLink, leverages a cloud server hosting the fare logic, security, and card handling libraries typically stored in the Tri-Reader. Established API's allow an IP enabled contactless terminal to access the server, deliver card status, and make card update requests. NextLink securely collects card data, applies fare logic, and issues update commands that are then delivered through the third-party reader/writer interface. Such terminals may include NFC smart phones, contactless retail terminals, parking devices, bike share lockers, and other similar points of acceptance.

The same connection is designed to be leveraged as a provisioning channel for account credentials to NFC enabled devices both to accessible secure elements and applets using Host Card Emulation (HCE).

The solution also supports the integration with both Cubic and third-party mobile ticketing applications. Cubic has been delivering and operating mobile proof of payment and bar code ticketing systems since 2006 with multiple programs operating throughout Germany. Cubic has also partnered with third-party specialist firms such as GlobeSherpa and Passport.



My Ventra Card #1 Scrolling List View Full List View

Figure 2-12. Cubic's Ventra Mobile Application in Partnership with Third-Party Mobile Ticketing Application by GlobeSherpa

In delivering a mobile solution in support of our Chicago Ventra program, we utilized GlobeSherpa to provide the mobile application. Their platform includes a Rider Application and Rider Website to purchase and use mobile tickets and create and manage accounts; a Fare Enforcement Application to authenticate and verify tickets; and a back-office platform, the Transaction and Operations Management System (TOMS), that allows transit operators to manage the system through a simple yet robust cloud-based dashboard.

Cubic is proposing herein to provide bar code tickets for DTPW and, via separate option, SFRTA as an integral element of the app similarly to what was done for Ventra. Bar codes can be used for single journey tickets, day passes, for users who don't have NFC enabled phones, or for low volume commuter rail and bus applications.

Through Cubic and GlobeSherpa collaboration in Chicago, transit users can now use Ventra stored-value and transit benefit value provided by employers to pay for Metra commuter rail mobile tickets. The integration also allows users to use the Ventra mobile app to manage and top-up a physical Ventra card. We also have integrated three distinct GTFS data sources for the three agencies into a seamless passenger information system to access next arrival times.

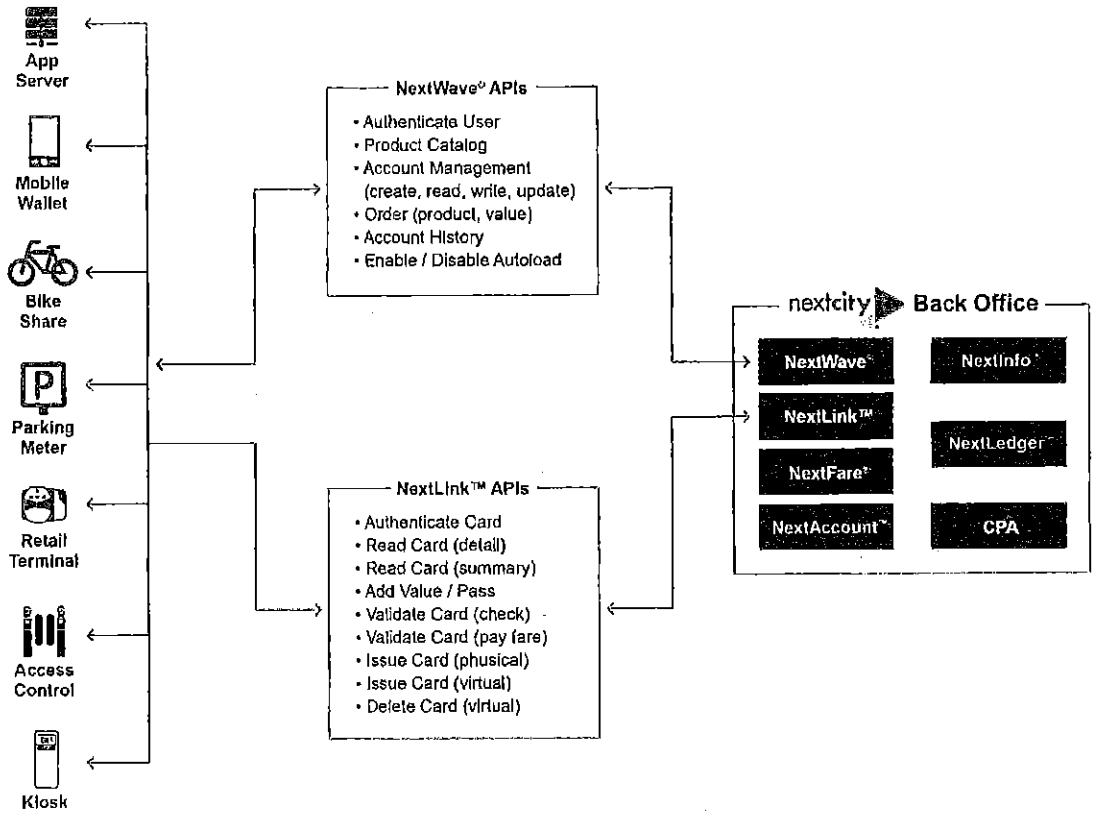


Figure 2-13. NextWave Mobile Environment

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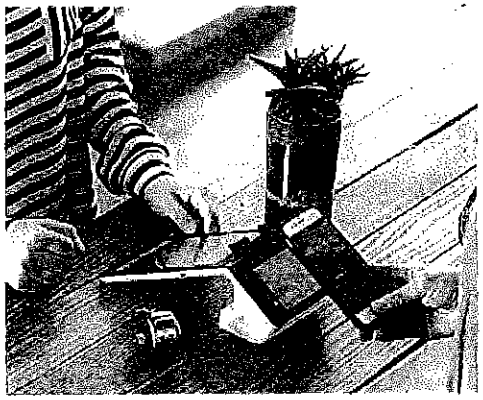

The platform also opens innovative options for the use of emerging Android/Tablet based retail terminals to access these capabilities in support of manned retail locations and the ability to provide EASY Card support to parking meters, bike share lockers, and conventional contactless payment terminals.

The platform is also designed to integrate with Cubic's intelligent content publishing service. This service allows for the creation of anonymized data sets that can be used by promotional content providers to target to individuals promotional content that is relevant to their preferences, location, destination, time, and past response patterns. Content can take the form of special offers, coupons, messaging, and/or points that consumers earn through optimal engagement with the transit network. Presentation of such content is carefully staged and presented during points of the travel experience that are not distracting to the journey.

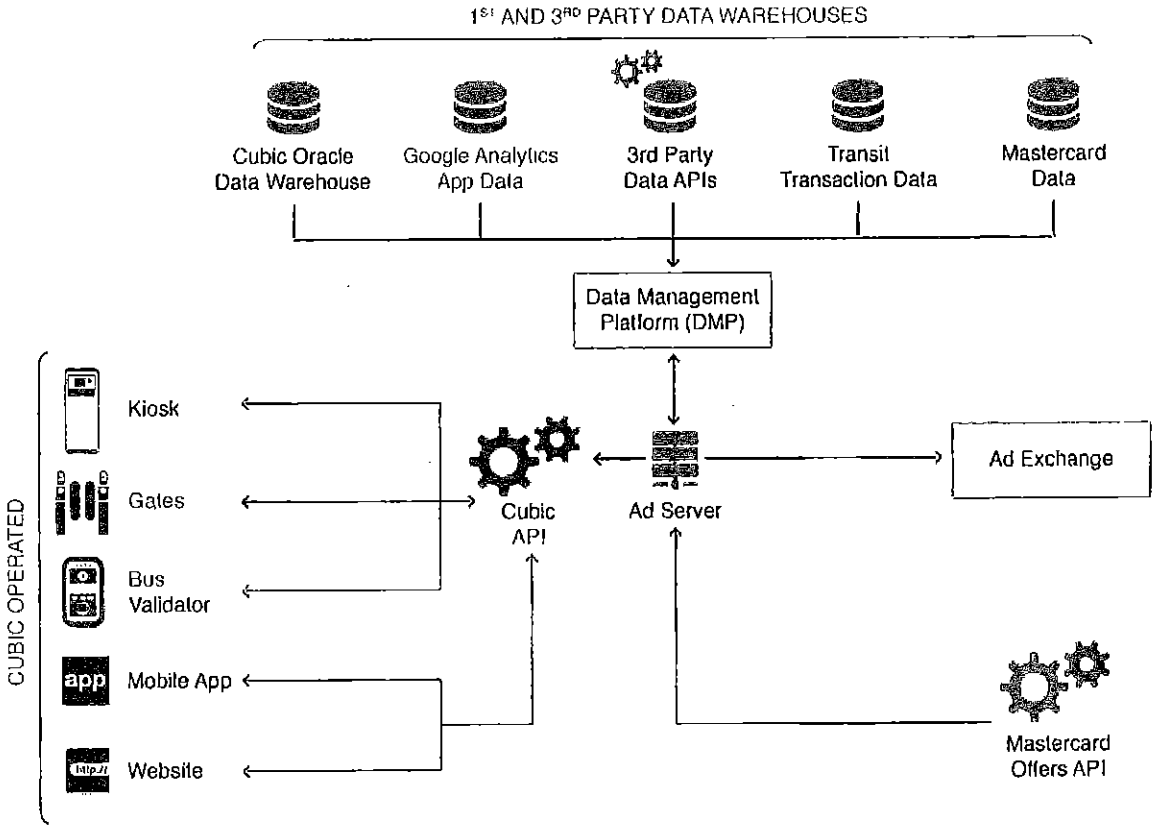

Figure 2-14. Intelligent Content Publishing Environment

The platform is also designed such that, over time, content may be published to AFC digital displays such as those facing users on gates, bus validators, and ticket vending machines. Our proposal is structured with Cubic taking responsibility for managing the supplier relationships, systems integration, publishing, and revenue optimization tasks on the basis of a revenue share arrangement whereby 40% of the net revenue generated is delivered back to DTPW.

One source of such content could be MasterCard who operates the TruAxis offers and rewards platform. MasterCard is a key strategic partner of Cubic in the electronic payments space and the app will be featuring the MasterPass mobile wallet platform.

The rise of digital payments is an important trend for MasterCard; MasterCard views digital payments as the future, and as a result; has invested heavily in making these payments easy and secure for consumers, issuers, and merchants. The first of these investments includes MasterPass, MasterCard's digital wallet, which brings several advantages to transit over other wallet providers. MasterPass is designed to be the simplest digital payment solution from beginning to end—across the widest range of scenarios. When making a purchase with MasterPass, riders may use any credit, debit, or prepaid card from any brand (the wallet can store up to 20 cards), or pre-tax transit benefit or other stored transit card, or any combination of payment cards (by splitting transactions). The split transaction feature provides the flexibility that riders need; for example, a rider can purchase a ticket valued at $80 using value from a pre-tax transit card ($60) and a credit card ($20) with one wallet transaction.

Figure 2-15 below depicts how the customer can load multiple cards, and instantaneously choose the best card(s) for each transaction. MasterPass is free for riders and Miami Dade.

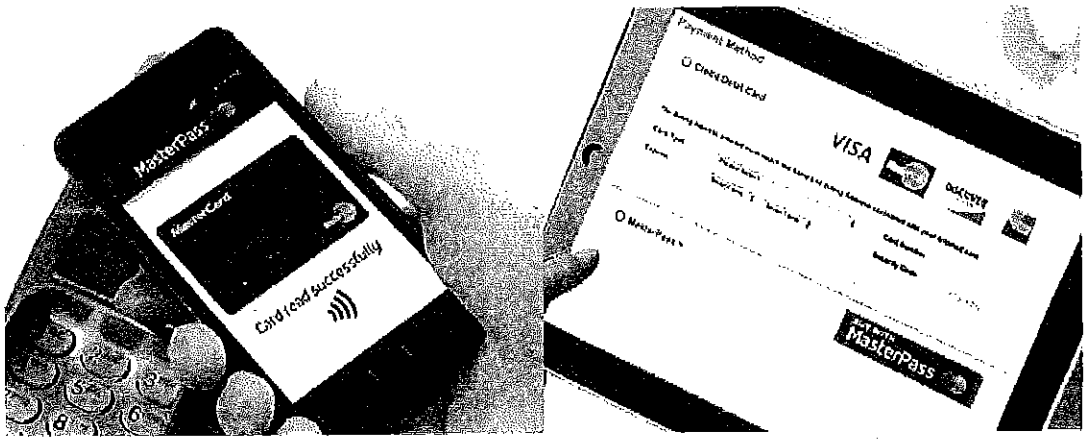

Figure 2-15. Customers Can Easily Upload Credit Cards to the MasterPass App on Their Mobile Phone or Tablet

MasterPass is also designed to enable secure digital payments across the widest range of operating systems. This includes payments performed online with a phone, tablet, connected device, or computer; payments made through an app on any connected device; and starting in Q3 2016, MasterPass will be available for contactless/NFC (Near Field Communication) payments on Android mobile devices (similar to Android Pay). Apps with MasterPass embedded in them let consumers complete a purchase with a few clicks or touches without leaving the app environment. No matter how rider pays for transit — online, in-app or at the turnstile — MasterPass enables them to pay with a tap, a click or a touch across the widest range of channels.

Customers are embracing the everyday simplicity and security of a MasterPass digital wallet. Payments using MasterPass are now being made in the U.S. and more than 20 countries. More than 250,000 merchants worldwide now have the "Buy with MasterPass" button located on their websites and apps. MasterPass offers tremendous value to consumers, transit agencies, and issuing and acquiring banks.

2.6.2.2.1 Benefits of Mobile for DTPW and SFRTA

- Extends fare network and customer service infrastructure to the mobile phone
- Allows users of the latest smart phones to directly top up their EASY Card through the app
- Leverages common CPA3 payment gateway and acquiring relationship
- Improves customer engagement
- Solves the complexity of using a phone as a ticket/card carrier
- Facilitates interoperability with agencies possessing no contactless reader
- Reduces media life cycle costs
- Reduces cash handling and vending machine usage
- Reduces dependency on retail partners for card top ups
- Reduces fare terminal action list dependencies
- Provides real-time product delivery to the consumer
- Improves speed to market and costs to deploy
- Spreads infrastructure and customer support costs across multiple transit properties.
- Enables new patron reward and revenue generation strategies

2.6.2.2.2 Benefits for Your Transit Customers

Consumers will have greater control over their cards with real time status updates and the ability to top up in real-time. The app also provides the ability to manage multiple funding sources for fare product purchases, activate and deactivate Auto-load, and set preferences.

The smart phone now offers the functionality of several discreet elements of the fare system:

- Ticket vending machine/kiosk
- Transit ticket/card
- Self-service kiosk for card related issues
- Journey planner
- Travel information portal.
- Real time communications channel to/from the transit authority

Our solution enables your organization to manage these services in a simple and cost-effective way, allowing you to provide mobile tools to your customers quickly and efficiently.

2.6.2.2.3 Mobile Solution Description

The mobile solution is designed to allow for a rapid introduction of a scaled back first release with progressive releases each introducing additional features and functions. The initial release will support conventional mobile tickets along with a suite of EASY Card utilities delivered via web and NextLink services from the cloud instance of NextFare 7. As the cloud platform is brought live the mobile application server will integrate via NextWave API's to NextFare 7, NextAccount, CPA3, and the transactional database. With the system upgrade phase, NextWave will be integrated to the Trusted Service Manager platform to facilitate delivery of virtual transit cards to accessible secure elements in consumer smart phones. Additionally, the system upgrade phase will introduce the integrated journey planner and intelligent content publishing elements of the program.

Figure 2-16. Mobile Phone as a Token.

Cubic's architecture allows us to partner with a variety of specialist mobile application providers. For DTPW we have secured proposals from both GlobeSherpa and from Passport. We are basing this proposal on the use of Passport as we understand DTPW may wish to include extended parking utilities as part of the app. Passport is an industry leader in the parking space and is best suited to include that capability suite. The firm is also active delivering transit ticketing apps across Florida including Jacksonville and Fort Lauderdale. While Passport can deliver parking functionality the app design and solutions architecture supports the linking to third-party apps including the Pay-by-Phone parking app in use by the City of Miami.

2.6.2.2.4 Retail Tablet Application

The NextWave and NextLink platform creates the foundation for additional applications for intelligent mobile devices to interact with both physical EasyCards and the back office cloud environment. This creates new flexibility in the ability for off the shelf devices to support specialty applications such as that required for retail top ups of EasyCards with fare product.

Included within this proposal Cubic and Passport will collaborate to deliver an Android tablet application that can carry out the primary functions of product selection, payment confirmation, and secure top up of EasyCards. The app will be designed with as much portability as possible with the goal to enable Android driven tablets and Point of Sale (POS) derivative products to facilitate fare product support.

Basic functions will include:

1. Operator log on
2. Shift reporting by operator
3. Operator feature navigation and product selection
4. Operator confirmation of payment tender
5. Device secure interaction with the NextLink Server
6. Secure reading and writing of Easy Cards via the tablet NFC reader/writer functions
7. Device location monitoring and disablement of NextLink functions based on location
8. Security management services

9. Integration with CPA
10. Support for a receipt printer via blue tooth

2.6.2.2.5 Mobile Feature Description

The mobile application will:

- Support both IOS 7 and Android:
  - At DTPW's option a mobile web version can be made available for those who are not on either Android or iOS (less than 5% of smart phones). The mobile work scope does include a mobile web site where users can get information, manage their accounts, buy mobile tickets, and link to other Agency services. The site, will not replicate the features of the EasyCard web site.
- Create/read/update account
- Update account information
- Forgot/Change password
- Create/read/update/delete funding sources (credit cards)
- Payment options for mobile ticket include:
  - Credit/debit on account
  - New credit/debit
- Purchase mobile ticket for transit agency
- Download purchased ticket from server
- Activate Ticket
- Display Active Ticket
- Show My Tickets
- View order history
- View Transit Service Information
- Links to Transit Service information for transit agency
- Support Registered EASY Cards:
  - Read virtual EASY Card balance via NextLink
  - Add value/passes to virtual EASY Card via NextLink
  - Display virtual EASY Card history
  - Present Balance/pass alerts (push notification)
- Support Virtual EASY Cards:
  - Download virtual EASY Card to NFC phone.
  - Read virtual EASY Card balance
  - Add value/passes to virtual EASY Card
  - Display virtual EASY Card history
  - Delete virtual EASY Card
  - Transfer virtual EASY Card to new phone
  - Deliver Balance/pass alerts (push notification
- Account Based EASY Card Support:
  - Register account based card to account
- Provide mobile analytics via web portal tracking mobile application user and behavior
- Support for account management, payment, CRM, reporting, and settlement of mobile tickets

Provide the following web based functions:

- Create/read/update account
- Update account information
- Forgot/Change password
- Create/read/update/delete funding sources (credit cards)
- Payment options for mobile ticket include:
  - Credit/debit on account
  - New credit/debit
- Purchase mobile ticket for transit agency and send to mobile phone
- Recall Ticket from Phone A to Phone B
- Show My Tickets on all phones
- View order history
- Help (FAQ)
- Links to Transit Service information for transit agency
- APIs for allowing a mobile app to reload a registered EASY Card. APIs shall include web services and mobile APIs for the following use cases:
  - Authenticate EASY Card
  - Read EASY Card balance
  - Add value/passes to EASY Card
  - Display virtual EASY Card history
  - Balance alerts (push notification)
  - Pass expiring alerts (push notification)
- APIs for managing virtual EASY Cards. APIs shall include web services and mobile APIs for the following use cases:
  - Eligibility check for virtual EASY Card
  - Download virtual EASY Card to NFC phone
  - Read virtual EASY Card balance
  - Add value/passes to virtual EASY Card
  - Display virtual EASY Card history
  - Delete virtual EASY Card
  - Transfer virtual EASY Card to new phone
  - Balance alerts (push notification)
  - Pass expiring alerts (push notification)
- An integrated trip planner shall allow a customer to plan trips from Point A to B across multiple modes of service, receive real-time service alerts, and store favorites. A SDK shall be provided by RideScout that provides the trip planning engine, and the provider shall be responsible for implementing the user interface for the customer. See Section X for more details on the trip planning function.
- A loyalty offers program shall be introduced to allow a user to enroll in the program, set preferences, receive notifications of offers. The mobile app shall interface to a set of cloud based APIs that provide the ability to:
  - Enroll/Un-enroll
  - Set program preferences
  - Receive offers
  - Redeem offers

SECTION 3.
Cubic Services

Cubic Transportation Systems, Inc.'s (Cubic®) comprehensive range of services can scale according to DTPW and SFRTA's needs. As described in the previous sections, Cubic can supply a complete system, tailor individual services, or run your entire fare enterprise – even when it is an integrated system incorporating subsystems, devices and components from multiple suppliers.

Cubic's services are broad and comprehensive, but always customizable. Our specialized revenue management solutions can empower, enhance, and manage an entire operation – or individual elements of it – depending on DTPW and SFRTA's requirements.

For DTPW and SFRTA, Cubic proposes a combination of Business Support, Operational Technology including Network Management, and optional Asset Management Services.

Table 3-1 provides a high-level view of the baseline and optional proposed services. The services are described in detail beginning in Section 6.1. The Operational Technology Services proposed in this section support the Cubic Cloud Platform and the Mobile environment in this proposal. Cubic also presents optional services for DTPW and SFRTA's consideration, including Field Maintenance and Device Maintenance.

Table 3-1. Cubic's Suite of Services

Type of Service
Business Support Services
Contact Center
Media Management and Distribution
Revenue Management/ Accounting
Third-Party Retail Management
Transit and Institutional Benefit Program
Operational Technology Services
Private Cloud Infrastructure
Hardware and Network Maintenance
Mobile Business Systems
Third-Party Software Maintenance
Cubic Application Support and Maintenance
Information Security
Asset Management Services
Field Maintenance
Depot Repair and Parts Supply
Device Support
Professional Services
Data Analysis
Marketing and Communications

Our Proof of Service

With more than 50 million passengers a day riding our systems around the globe, Cubic's services are being used in public transportation to improve operations, provide better service to transit customers, and help transit providers put technical and operational innovations into practice.

Cubic's skills, technology, knowledge and lessons learned from numerous services programs will be directly applicable to meeting DTPW and SFRTA goals.

"I think over the years, one of the great successes of Oyster has been the interaction between my people and Cubic."

Sir Peter Hendy CBE, Former Commissioner, Transport for London, and current Chairman, Network Rail

- **Oyster® Card:** With more than 29 million cards in circulation, Cubic's highly acclaimed 15 year old Oyster contactless smart card is now the most widely circulated smart card in Europe. Having designed, manufactured, and commissioned the system from the ground up, Cubic continues to manage, monitor, and maintain London's fare collection equipment. Cubic provides a wide range of technical support services for Transport for London (TfL), helping public transport across the capital experience phenomenal growth since the introduction of Oyster.
- **Clipper® Card:** Cubic delivers a full range of operational services for the Clipper regional smart card system for our customer Metropolitan Transportation Commission (MTC). Eight operators providing transit services for one million riders across nine counties offer seamless interoperability throughout the region. Cubic provides end-to-end support services including field services, Help Desk support services with issue tracking systems, central system and website hosting and maintenance, a customer service center managing all account requests for participating agencies, card distribution and reload network management, and financial transaction processing, funds management, and distribution across agencies.
- **Chicago's Ventra™:** Chicago's Ventra program represents the first large-scale open payment system in production in the United States. Cubic's innovative business model delivers Customer Support Services, Card Management and Fulfillment, Operational Information Technology and Cubic Cloud Platform Services, Revenue Reconciliation Services, Asset Management Services, and Professional Services. The Chicago Transit Authority (CTA) chose to subscribe to a new business model which has demonstrated proven cost savings in revenue handling since inception. Cubic intends to leverage and improve upon this model for the DTPW and SFRTA project.
- ***go* card:** One of two advanced Cubic fare collection systems in Australia, *go* card – a Cubic-designed fare collection and revenue management system – connects 20 major public and private regional operators in Brisbane, Australia. Our customer, TransLink® Transit Authority, relies on Cubic for a full spectrum of support services, including central ticketing systems and network operations, marketing support, regional clearing, and settlement. Other essential services provided by Cubic include card management, card distribution, asset management services, and cardholder support services. Cubic also created the website that allows customers to self-service and manage their smart cards.

- **Sydney Opal:** Sydney's Opal Card connects customers in Sydney, Newcastle, Blue Mountains, Central Coast, Hunter, and Illawarra on trains, buses, light rail, and ferries with over 4 million cards in service. Our customer Transport for New South Wales (TfNSW) engaged Cubic to handle a full range of business support, contact center, media management, operational technology, and asset management services.

Cubic's Service specialists monitor real-time performance through Cubic's dashboards and online tools. We constantly refine and tailor our business model to individual agency's needs as part of Cubic's One Team approach. One Team promotes open and cohesive collaboration with our customers providing two-way insight into each other's operations, both inside and outside of our Customer Services divisions, supporting our customers and developing an innate understanding of how to provide the best possible passenger experiences.

By choosing Cubic services, DTPW and SFRTA will replace the features and functionality currently managed internally. Cubic will guarantee system performance by signing up to a set of stringent Key Performance Indicators (KPIs), Service Level Agreements (SLAs), and associated financial penalties for non-performance. Our proposed KPIs include what we believe are industry-standard metrics developed over years of working with a variety of global public transportation entities, including those represented in Figure 3-1. DTPW and SFRTA will have daily access to the KPIs to measure Cubic's ongoing performance to the SLAs through reports and online dashboards.

	TfL	Sydney	MTC	CTA	TL
Business Support Services					
Contact Center Level 1	●	●	●	●	●
Contact Center	●	●	●	●	●
Media Management and Distribution		●	●	●	●
Revenue Management and Accounting			●	●	●
Third-Party Retail Management			●	●	●
Transit and Institutional Benefit Program			●	●	
Operational Technology Services					
Cloud/Hosting Infrastructure	●	●	●	●	●
Hardware and Network Maintenance	●	●	●	●	●
Third-Party Software Maintenance	●	●	●	●	●
Cubic Application Support and Maintenance	●	●	●	●	●
Information Security	●	●	●	●	●
Asset Management Services					
Field Maintenance	●	●		●	●
Device Support	●	●	●	●	●
Depot/Workshop Repair and Parts Supply	●	●	●	●	●
Spares and Obsolescence	●	●	●	●	●
Cash Handling/ Management		●	●	●	●
Professional Services					
Data Analysis					
Customer Engagement and Community Outreach				●	

Figure 3-1. Cubic Services Delivered to Customers

3.1 Operational Information Technology Services

The primary responsibility of Operational Information Technology Services is to maintain a high availability of all applications running in the Cubic's Cubic Cloud Platform. The Cubic applications are combined into a total one-stop cloud solution. The applications include the fare collection application, an Oracle® database management application, a business Intelligence query and report generation application, and an asset management application.

As the designer, developer, and/or integrator of these applications, Cubic understands the intricacies and complexities of the fare collection system and is well suited to provide system support. Outsourcing the ongoing operation of the DTPW and SFRTA system allows Cubic to provide subject matter expertise who will respond quickly to resolve any issues as they arise.

By selecting the Cubic Cloud Platform solution, DTPW and SFRTA also provides a sustainable growth path for the tools by ensuring the responsibility for technology asset refresh, software enhancement and maintenance, and all operational aspects of the technology environment rest on Cubic instead of on internal DTPW and SFRTA Information Technology (IT) staff, including data security, cyber security, rapidly changing data and mobile standards, and PCI compliance.

3.1.1 Cloud Services

Cloud Services are provided as part of our hosting the fare collection environment. Our cloud infrastructure – available only to our subscribed public transportation customers – is a secure, high-availability, disaster recovery, scalable model proven to handle the high transaction volumes found in our customers' environments.

Tested to rigorous standards, staffed by industry experts, and powered by best-in-class enterprise partners including VMWare, Oracle, Amazon Web Services (AWS), Microsoft Azure, SAP, and Cisco, the Cubic Cloud Platform will host DTPW and SFRTA's fare system without tremendous initial capital outlay and without concern for system hardware and software aging. Our experienced operations staff can significantly reduce DTPW and SFRTA's time to upgrade to the system based on their previous successful projects for entities like CTA. Our team's hands-on daily involvement in these production systems already located in the Cloud environment will provide a solid foundation for success for DTPW and SFRTA, reducing both the capital and operational cost of the system and the risk during its deployment.

From the acquisition, installation, and tuning of all on-demand infrastructure growth, to continuous performance monitoring, software maintenance, security and intrusion monitoring, and on-demand scaling, Cubic's Service will enable DTPW and SFRTA to upgrade the fare collection environment in a cost effective manner.

Data Center services include tasks related to:

- **Facility Management:** Monitoring of the system environment and coordinating routine hardware maintenance, backups, recovery, etc.
- **Security Administration:** Physical security of the premises allowing only authorized personnel access to the environment.

- **Technology Services Scaling:** Monitoring the system performance at all times and allocating additional on-demand resources should transaction volumes progress past certain thresholds.
- **Third-Party Services:** Cubic works with our partner to ensure appropriate service level agreements for all connectivity and bandwidth. By leveraging services across multiple customers, Cubic can provide a higher level of stability and performance at a cost effective price.
- **Application Hosting:** Cubic will host all Cubic and Third-Party Applications within the Cubic Cloud Platform and will provide tools for DTPW and SFRTA staff access to all of the back-office systems, either through web-enabled applications or reports.
- **Website Hosting:** As part of our Cubic Cloud Platform Service, Cubic will work with our partner Americaneagle.com to provide website hosting services for your customers to have both desktop and mobile optimized access to the online account tools.

3.1.2 System and Network Operations

System operation services provide the operations personnel needed to perform the day to day tasks related to running the central system and other parts of the overall fare collection network.

The main central system operations tasks include:

- **Fault Management:** Diagnosis, correction, follow up, and record management of all faults.
- **System Monitoring:** Scheduled reviews, utilization of diagnostic tools, database integrity and synchronization, log management of system activities.
- **Backup, Recovery, and Archiving:** Data and program back-up, offsite storage management, record management, and media inventory management.
- **Disaster Recovery:** Create and maintain contingency plan and perform plan testing.
- **Documentation Management:** Establish and maintain the documentation library and provide offsite storage management.

For the station network, Cubic provides optional Network Management System (NMS) tools and services to manage all communications devices and components in the environment, including integrating the local network devices into our overall Network Monitoring System, to Configuration Support, Network Operations, Bandwidth monitoring, and security, and network traffic and flow analysis. Those components are included for the back office cloud infrastructure and in conjunction with AFCMS for devices in the field. Network, back office and device monitoring is provided via the Cloud and AFCMS. MDT will still maintain responsibility to monitor their network that interconnects the stations and other MDT facilities.

Cubic proposes to perform all Cubic Cloud Platform services related to the central system and the hosted environment as baseline, and all onsite station and DTPW and SFRTA fare collection network operations and services as an option.

3.1.2.1 Central System Maintenance

System maintenance services perform central system planning and access configuration tasks. The main system maintenance tasks include:

- **Planning:** Performance monitoring and capacity management of the central system.
- **Configuration:** Authorized user access and user group management.

3.1.2.2 Cubic Cloud Platform Network Operations Center

All network monitoring associated with the Cubic Cloud Platform Service will be included as part of our baseline offering. This includes:

- **Network Management of Central System Devices:** The Cubic Cloud Platform includes a Network Operation Center (NOC) for all Cubic Cloud Platform Services, including switches, routers, fiber channel, servers, and other components delivered as part of our hosted environment.
- **NOC Services for Connections to the Cloud:** The Cubic Cloud Platform Service includes as a baseline subscriptions to secured internet connections between DTPW and SFRTA and our data centers and leased lines between our data centers and merchant services. Cubic will take responsibility for ensuring this environment meets all performance and uptime requirements.

The Network consists of the data lines and associated hardware that make up the secured private network. Network maintenance involves system monitoring, preventive maintenance, and any corrective actions in the event of communications degradation or failure.

Cubic provides these services to other customers and has developed a suite of tools, reports and processes that monitor network availability for 24/7 operations with an estimated central system uptime of 99.5%. As the fare collection system becomes more reliant on high speed communications, it is important to achieve the highest availability possible. Optional localized network operations services for the DTPW and SFRTA fare collection environment are detailed in the sections below.

3.1.2.3 Application Maintenance

Cubic proposes to perform application maintenance services and related tasks such as updates and issue resolution. The main application maintenance tasks include:

- **Software Change Management:** Updates, maintenance and support, software configuration, and testing of all software changes to the central system.
- **System Configuration and Changes:** Maintain various parameters, including ongoing changes in response to regulatory requirements.
- **Hardware Management:** Manage hardware changes, provide testing/certification, and provide configuration documentation management.
- **Problem Resolution:** Research and resolve application issues.

3.1.3 Third-Party Software Support

As part of our standard Cubic Cloud Platform, Cubic provides a variety of Commercial-off-the-Shelf (COTS) products incorporated into our software modules. Best-in-class tools including Oracle Databases and tools, SAP Business Objects, Metrix, and Coda, come included with our solutions. As part of our core Operational Technology Services, Cubic will provide Third-Party Software Support, including all software maintenance, patches, upgrades, and integrations.

By choosing Cubic's Third-Party Software Support Service, DTPW and SFRTA will reduce the overall system administration and maintenance cost for the payment system by leveraging agreements in place within our Cloud that optimize costs across multiple tenants. Cubic will take responsibility for all regression and system testing for all upgrades and maintenance activities.

3.1.4 Cubic Application Support and Maintenance

The Cubic Application Support and Maintenance Service will provide ongoing service for our modules, including NextFare, NextAccount, NextLedger, NextWave, Cubic Payment Application, NextContact™, and NextInfo. With this service, DTPW and SFRTA will receive updates, releases, and upgrades to your core system, including all systems engineering, administration, and regression testing of the core environment.

3.1.5 Information Security Services

From PCI Compliance to firewall management, unified threat management, event and log management, intrusion prevention and detection, and secure web gateway management, Cubic's Information Security Services will ensure the DTPW and SFRTA Cubic Cloud Platform meets all security requirements. Our team of qualified security professionals consistently monitors for security and performance issues, and tune and harden the systems in response to potential issues.

As an annual service, Cubic will own responsibility for ensuring that DTPW and SFRTA's hosted environment and infrastructure meets all PCI Compliance Requirements, and will recertify the environment annually. Cubic's Cloud Platform achieves Tier 1 PCI certification and is monitored in conjunction with external PCI specialists to ensure compliance.

Additionally, Cubic can provide Information Security Services on a consultative basis either for the legacy environment until its retirement, or for all physical components of the environment, even if DTPW and SFRTA does not choose Cubic to provide Field Maintenance Services.

Cubic's Cubic Cloud Platform operates in accordance with a comprehensive security management framework which is aligned with the ISO 27001 Information Security Management System (ISMS) standard. Cubic's ISMS includes the policies, standards, guidelines, and procedures that are utilized to implement administrative, physical, and technical controls. The controls support regulatory requirements such as the Payment Card Industry Data Security Standard (PCI-DSS), legal requirements regarding privacy, and general security best practices. The ISMS is periodically updated to incorporate changes to the threat environment and new or updated contractual obligations.

Cubic operates and maintains all systems and the infrastructure in accordance with the same set of strict ISMS controls, regardless of whether or not an individual system stores, processes, or transmits cardholder data or Personally Identifiable Information (PII).

While PCI-DSS provides a baseline of technical and process requirements designed to protect cardholder data, the Cubic ISMS defines how information security is managed for all systems with the same intent and rigor as cardholder data related systems. Defense in depth, least-privilege access, risk-based vulnerability management, and continual monitoring are the primary concepts that Cubic enforces to maintain a high-level of security in our hosted Cubic Cloud Platform environment.

Security and compliance is a critical part of this upgrade. The field devices will process sensitive information by encrypting locally and transmitting over SSL to the back office. So in a sense there are two methods of encrypting from devices in the field. 1) The establishment of a VPN from the Microsoft

Azure cloud environment to MDT's location and 2) SSL connections from the TVMs to the back office. Optionally we can provide full encryption within the TVM itself at the pin pad but this is not a requirement for PCI and does substantially increase the price – this is not necessary for meeting PCI compliance.

The TR3 on usage devices such as gates and fareboxes will encrypt sensitive card data with RSA 2048 encryption which is sent over the VPN to the back office where it can be decoded.

TR3's mounted to TVM's are not planned to support contactless payment due to the integration complexities of tying into the POS terminal. It was determined that given direct contactless payment acceptance capability at fare terminals the frequency of such events at TVM's would not justify the cost. Those people with mobile payment wallets would be encouraged to get the EasyCard app should they wish to purchase passes, etc.

Credit and debit acceptance at TVM's will be controlled by the POS terminal and such card data will be encrypted prior to transmission over the network.

Network segmentation with strict access control lists and role-based user access ensure that network and application access is minimized to prevent security breaches. All systems are hardened in accordance with secure configuration standards and patching is performed on a monthly basis to reduce vulnerabilities.

Cubic maintains a centralized security operations team which provides security monitoring, vulnerability management, and incident response capabilities. Threats and vulnerabilities identified in one project are communicated to other programs to facilitate preventative mitigation of risks. Internal audits are performed at least quarterly to ensure continual compliance with requirements and to ensure risks to the security posture are at acceptable levels.

3.1.5.1 Encryption

One important security feature of the Cubic Cloud Platform is the Cubic Payment Application (CPA). Cubic developed CPA for secure processing and storage of credit card data. CPA has been validated as compliant with the PA-DSS and has application programming interfaces (APIs) for integration with web services and customer relationship management systems.

CPA includes a dedicated hardware security module for encryption operations and key management. The use of CPA allows for centralized, secure encrypted storage of cardholder data. Tokens are provided by CPA to other applications, such as CRM to limit the storage and use of full credit card numbers. Within CRM only the last four digits of a customer's credit card number would be stored along with the CPA non-hash token. Bank adapters are developed and certified for use with CPA to provide encrypted cardholder data transmission to acquirers for authorization of credit card transactions.

3.1.5.1.1 Device Encryption

3.1.5.1.1.1 PayGo at Use Devices

Cubic's Information Security practices extend to the field devices that process sensitive payment information. For End-to-End Encryption for PayGo, at use devices such as faregates, RSVs, and buses, the Primary Account Number (PAN) is always encrypted utilizing the public key. This public key is stored

in the device and is part of a public/private key set that prevents the decryption of the encrypted PAN even if the public key is known. The private key is stored securely using the RSA2048 OEAP encryption method within the Cubic Cloud Platform inside the secure environment. The information related to the Bank Card is passed to the central cloud infrastructure utilizing the APIs defined to allow for usage and sales functionality.

Each device message for PayGo includes a Message Authentication Code (MAC) that allows validation of the device as authorized send messages to the Central System. This MAC code is generated utilizing the message content and a key that has been stored on the device in secure storage. The MAC code is generated using HMAC-SHA256. This ensures the message from the device has not been tampered with and that it is from a device with a valid ABP MAC key.

3.1.5.1.1.2 Sale Devices

The communication channel between sale devices and the cloud uses TSL encryption over SOAP to protect the credit/debit data.

3.1.5.1.2 Device Key Storage

Key storage on the device utilizes a key card set generated using a Key Generator Transmitter (KGT) and allows for the secure control and management of the keys that are utilized in the Cubic Cloud Platform. The keys involved are the public keys from the credit card companies, the ABP message MAC key, the keys for interacting with the closed loop cards, and the message MAC key. These keys are stored on the device in secure storage such that any tampering with the storage destroys the keys. Keysets distribution methods comply with PCI key management and chain of custody requirements.

3.1.5.2 Fraud Prevention

Cubic enforces strict policies and procedures regarding access, handling, and usage of personal information and cardholder data, including an identity theft prevention program utilizing the Red Flags Rule as a baseline. In addition, Cubic call centers have strict physical and logical access policies to prevent unauthorized access to the facilities and data. Call center personnel are not permitted to bring mobile phones or recording devices into the call centers as an extra security precaution.

Processes within the cloud environment, web applications, and IVR systems are in place to authenticate customers prior to providing any information related to the account in order to verify the identity of the customer. Customers are typically provided with PIN codes for IVR access and challenge/response questions when speaking to a customer service representative. For credit transactions, Cubic will typically use account verification measures such as using the zip code or card validation code in order to authorize and process a transaction.

3.1.5.3 Cubic Cloud Platform Security Reviews

Cubic performs an annual risk assessment to identify new threats and potentially weaknesses in our operating environment. Part of the risk assessment includes a review of security vulnerabilities identified in other Cubic programs and reviews of industry released security and breach reports, such as the Verizon Data Breach Report and the Mandiant APT-1 report, to identify new threats and trends. Additionally, annual penetration testing of production environments is performed by leading third-party

security companies in order to identify new vulnerabilities, obtain guidance on emerging threat and attack vectors, and to provide expert guidance on vulnerability mitigation strategies.

3.1.5.4 PCI Compliance

Cubic has PCI certified Internal Security Assessors (ISAs) on staff, as well as strong relationships with external PCI Qualified Security Assessors (QSAs), security, and financial consultants. ISAs receive the same training and advanced releases of new versions to the PCI DSS that QSAs do. The Cubic law department also monitors local and federal legislation changes to privacy and data protection laws. With these relationships and processes in place, Cubic typically has a thorough understanding of proposed legal and regulatory changes before they are published.

For example, a number of emerging requirements have been published in the recently released PCI DSS version 3.0. One of these requirements is to perform periodic physical reviews of point of sale systems to identify the existence of unauthorized attachments, such as skimming devices. While PCI DSS v3.0 compliance is not required until 2015, Cubic has already developed work instructions for field services personnel to perform routine physical inspection of ticket vending machines in managed service operations. Other changes include the evaluation of anti-virus software on systems that are not commonly affected by malicious code. Cubic has already been utilizing antivirus software on these systems and has implemented stricter controls in the form of whitelisting software on remote systems to prevent the installation or running of any unauthorized software.

3.1.5.5 Personally Identifiable Information

Cubic is committed to maintaining the privacy of all personally identifiable information (PII) belonging to DTPW and SFRTA customers. Technical security controls and vulnerability management processes are in place to ensure a high-level of security to protect against malicious attacks and from unintentional errors.

While technical security controls and processes provide the foundation for effective privacy protection, Cubic also provides personnel with training on handling requirements for PII and restricts access to PII system and applications to only those personnel that require access for customer service, trouble-shooting, and administrative purposes. All personnel who handle PII or have privileged credentials to manage systems undergo background screening checks and are required to read and sign privacy policies prior to obtaining system access.

Cubic only utilizes PII for the purposes for which it is collected in order to manage transit accounts for registered individuals.

3.2 Key Performance Indicators and Service Level Agreements for Cubic Services

The levels of service required to meet DTPW and SFRTA's business objectives for all selected services will be captured in a set of KPIs. Performance against these KPIs will be measured and reported on weekly. Actual performance against requirements and performance trends over time will be measured. Cubic proposes several criteria for defining the KPIs and SLAs:

- Service levels must be able to be measurable, and be related to the organization's overall goals.

- The number of mutually agreed upon Service Level Agreements (SLAs) should be carefully selected and relatively few, but they should cover the key areas of contract performance.
- Performance is what is objectively demonstrated through the SLAs.

KPIs are important operational indicators of performance for both the Cloud Infrastructure and of Cubic's Professional Services team. The number and type of indicators may vary over the life of the contract depending on DTPW and SFRTA operational objectives. Cubic proposes a series of KPIs and SLAs proven in other Cloud Services installations, including:

- System Uptime
- Transaction Times
- Device Availability

For the optional Field Maintenance Service, Cubic proposes KPIs similar to those we meet and exceed today at other similar agencies. Cubic will work with DTPW and SFRTA to fine tune the KPIs and SLAs to the agency's needs.

SECTION 4.
Price Proposal

This section provides Miami-Dade Transit (DTPW) with pricing for the proposed Fare Modernization Program described in Sections 1 through 3 of this document.

1. **Cloud Services Core and Systems Upgrades**

   NextFare 7 and CPA3 in support of existing features and equipment

   a. Implementation **$15,160,260**
      i. Migration to NF7/CPA3 in the cloud
      ii. Launch of mobile ticketing application and NextLink
      iii. Enablement of integrated bar code publishing and validation

   Upgrade of devices and cloud processing to support:

   a. Contactless open and mobile payment
      i. Pay as You Go processing
   b. Enhanced reporting and clearing functions
   c. Mobile application extended to include
      i. Virtual EASY Card (closed loop mobile tap and pay)
      ii. Integrated trip planning
      iii. Intelligent content publishing
         1) Cubic to manage and provide 40% Rev Share to DTPW
   d. Retail tablet application for remote EasyCard sales/top ups
   e. Published API's for third party device integration

2. **Cloud Services (10 year term)**

   Cloud/Mobile Hosting and Applications Maintenance
   Services for Mobile & Open Payment Enhancements

Contract Year 1	$ 952,385	
Contract Year 2	$1,525,538	
Contract Year 3	$1,571,305	
Contract Year 4	$1,618,444	
Contract Year 5	$1,666,997	
Contract Year 6	$1,717,007	
Contract Year 7	$1,768,517	
Contract Year 8	$1,821,573	
Contract Year 9	$1,876,220	
Contract Year 10	$1,932,506	**$16,450,492**

3. **EMV Option** ..... **$ 1,369,860**

Software Modifications/Innovative Enhancements ..... **$ 96,471**

TOTAL PRICE **$33,077,083**

SECTION 5.

Key Pricing Assumptions

The pricing presented in Section 4 is dependent upon the following key pricing assumptions:

1. Notice to Proceed (NTP) for Cloud Core Services and Systems Enhancements no later than October 31, 2016.
2. If Europay, MasterCard, and Visa (EMV) compliance package selected, work is coincident with Cloud Core Services.
3. Hardware Asset refresh assumed as an addition to existing contract with like Terms and Conditions and must be performed to support Systems Enhancements.
4. Cloud core and enhancements assumed as new contract with same/similar terms and conditions to the existing contract.
   a. EMV compliance would be an optional extension to this contract.
5. Mobile ticket validation on gate lines dependent upon Hardware Asset refresh.
6. Cloud based IP/Licensing applies for all cloud services
   a. No transfer of IP during cloud based O&M;
   b. End of O&M transition will provide license right to DTPW for continued use of the software;
   c. Licensed use presumes DTPW acquires at its expense all hardware and third party software/licenses necessary to support operation;
   d. Post-term software maintenance will require separate agreement;
   e. Current SMA scope/cost will be absorbed in new O&M arrangement.
7. Operation and Maintenance Term is 10 years.
8. All prices are excluding taxes which would be applied as required.
9. Prices also exclude standard merchant processing fees which would be direct to Miami-Date Transit (DTPW) as are currently the case with Ticket Vending Machine (TVM) and web payments.
10. Cubic reserves the right to charge a one time "issue fee" to consumers for virtual EASY Cards to cover the costs payable to the carriers and/or Original Equipment Manufacturer (OEM) handset manufacturers.